

SMITHSONIAN zoogoer

WINTER 2017-2018



Big Bite

Big or small, sharp or flat, teeth help their owners stay alive.

- » **Tiger Cub Trek**
- » **For Kids: Red Pandas**
- » **2018 FONZ Calendar**

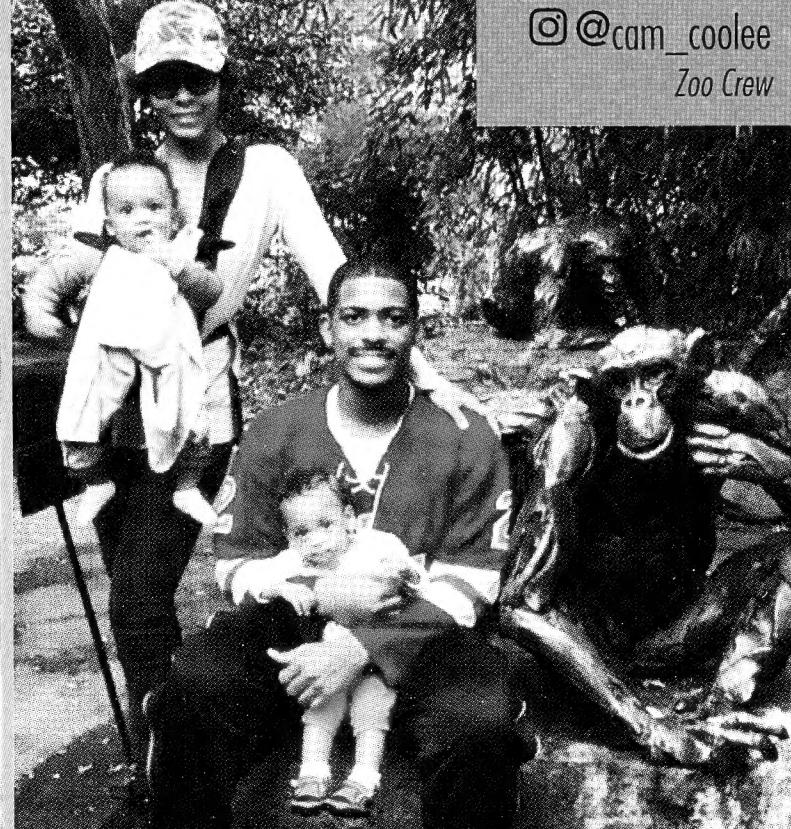
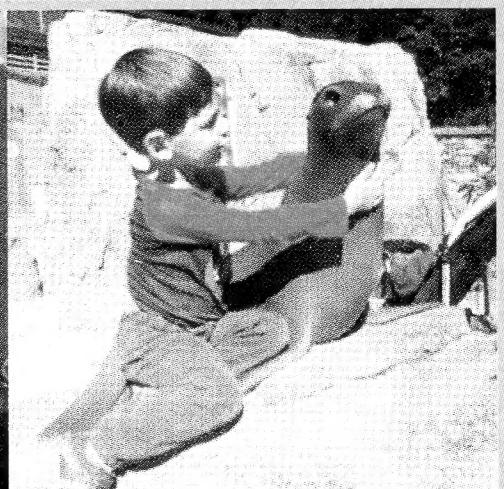
The magazine for members of **FONZ** | FRIENDS OF THE NATIONAL ZOO



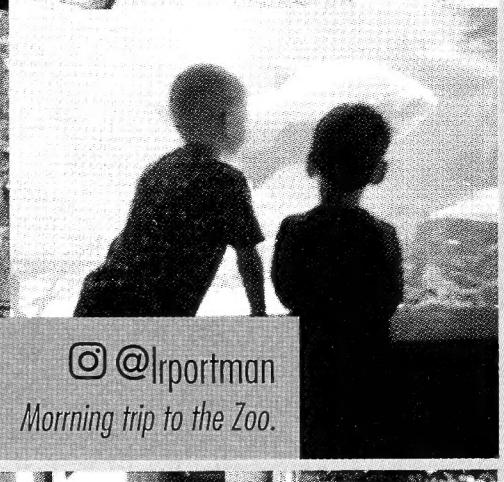
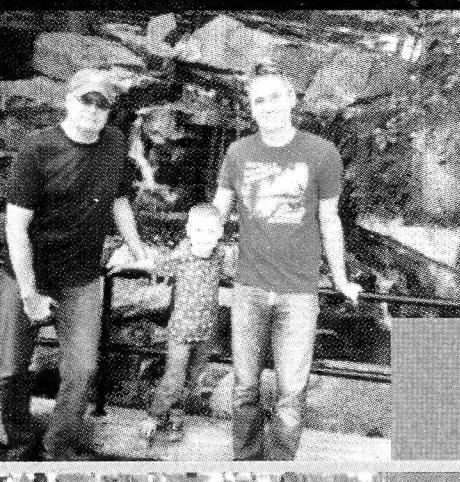
@mrichon1
Redd and Bonnie sharing a special moment.



@Andrea_Risotto
Beautiful event #DCZooGala!



@jtstl5378
Pete the Prairie Dog



@lportman
Morning trip to the Zoo.



WHAT'S YOUR STORY?

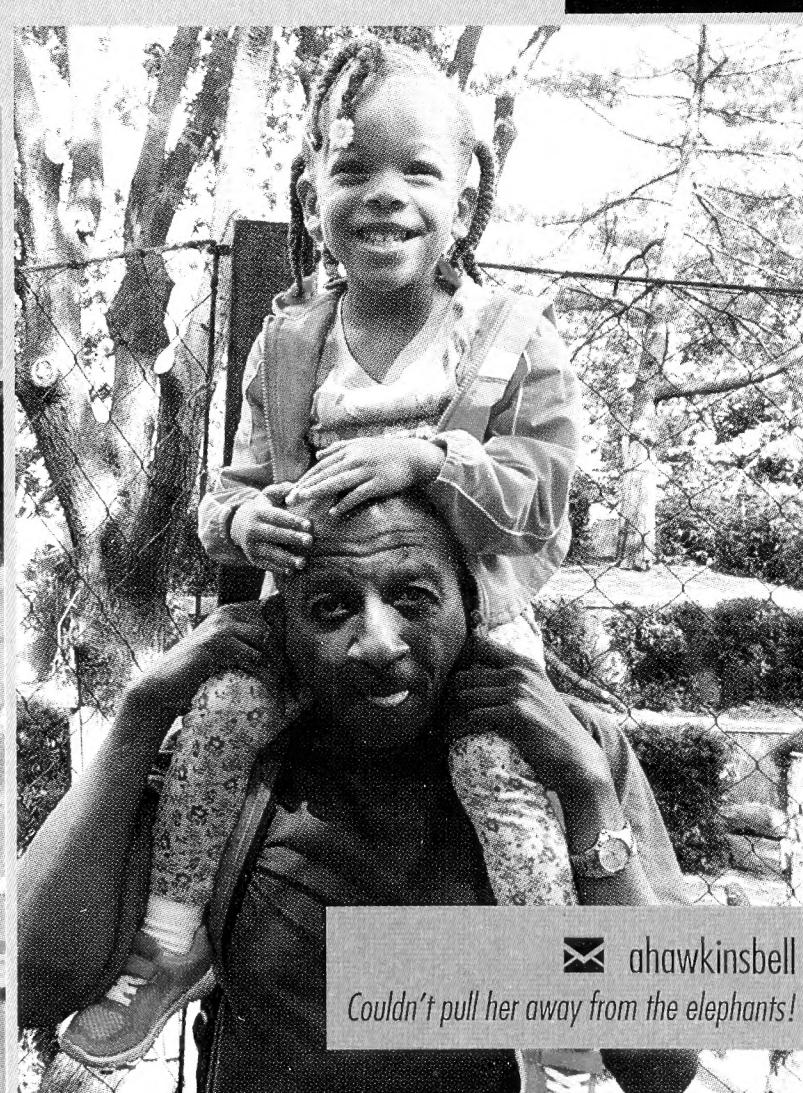
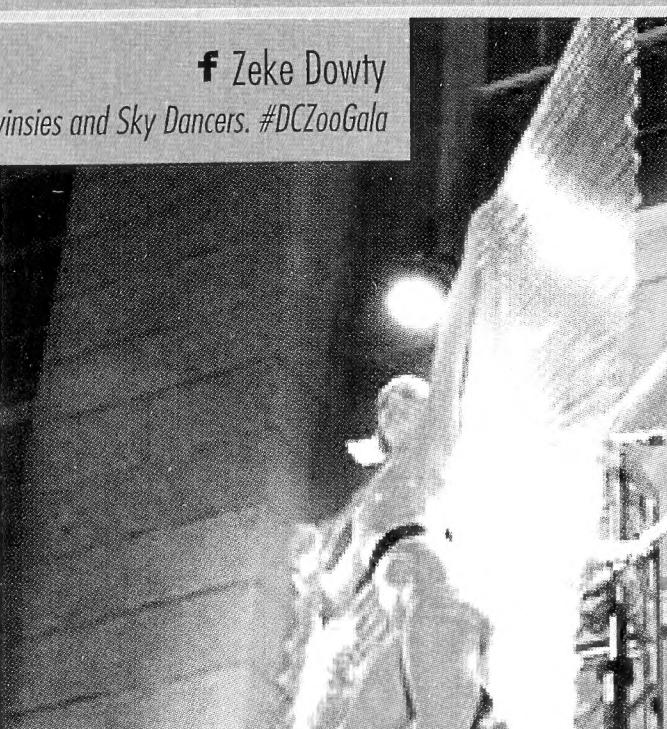
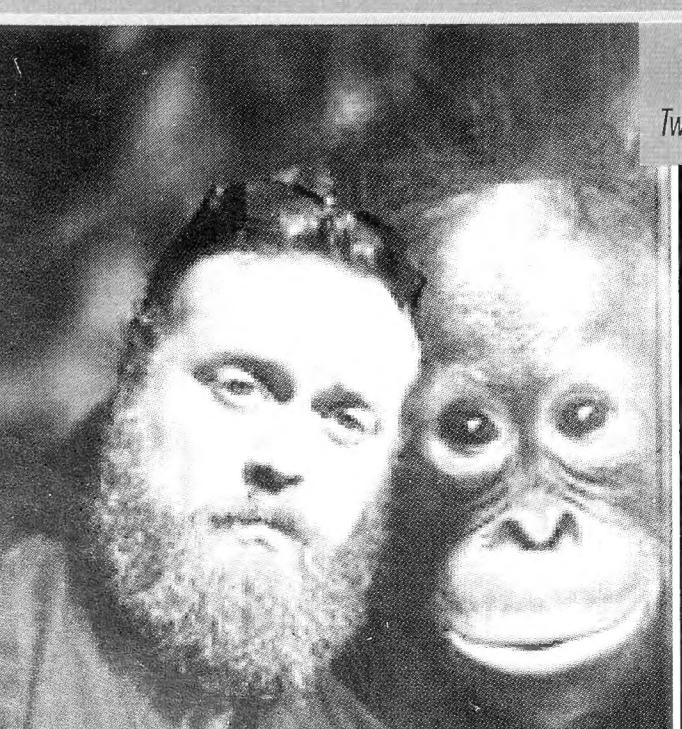
We love hearing about your visit to the Zoo, the event you attended, or any of the ways you support FONZ and the Zoo! Share your love of wildlife conservation and support our mission to help save species.



@DavidJSkorton

We recognized Harrison Ford with the Smithsonian medal for his years of work on behalf of wildlife and the environment. #DCZooGala

@FONZNATIONALZOO
#WEAREFONZ



@hawkinsbell
Couldn't pull her away from the elephants!



@DOD
New



12

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FEATURES

Nothing but the Tooth

Teeth—used as knives, mills, saws, shovels, and sensors—represent a small part of an animal's mass, but they're critical for survival.

BY BRITTANY STEFF

20 cub Buds

BY CRISTINA SANTIESTEVEN

When a new tiger cub's mom started ignoring it, then growling at it, the Zoo staff needed to come up with a creative solution—fast.



FONZ 2018 Wall Calendar

Enjoy 12 months of breathtaking images featuring your favorite Zoo animals—a special benefit of FONZ membership.



The Friends of the National Zoo helps the Smithsonian's National Zoo and Conservation Biology Institute save species by raising funds to support their mission, providing educational and fun experiences, and inspiring our members and guests.

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 **Smithsonian National Zoological Park** is located at 3001 Connecticut Ave., N.W., Washington, D.C., 20008-2537. Weather permitting, the Zoo is open every day except December 25. For hours and other information on visiting the Zoo, go to nationalzoo.si.edu.

Membership in FONZ supports the animal care, conservation, and educational work of the Smithsonian's National Zoo and Conservation Biology Institute. It also offers many benefits: a *Smithsonian Zoogoer* subscription, discounts on shopping and events, discounted or free parking, and invitations to special programs and activities. To join, call 202.633.2922, or visit fonz.org/join.

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Premier	\$80
Premier+	\$110
Patron Circle	\$250-\$499
Sponsor Circle	\$500-\$999
Benefactor Circle.....	\$1,000-\$2,499
Director Council.....	\$2,500-\$4,999
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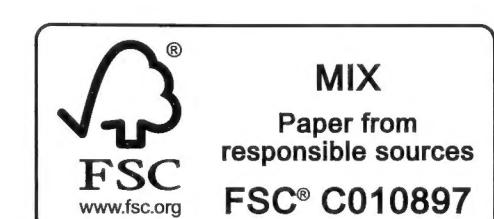
On the cover: A Cuban crocodile hatchling.
PHOTO BY MEHGUN MURPHY, NZP



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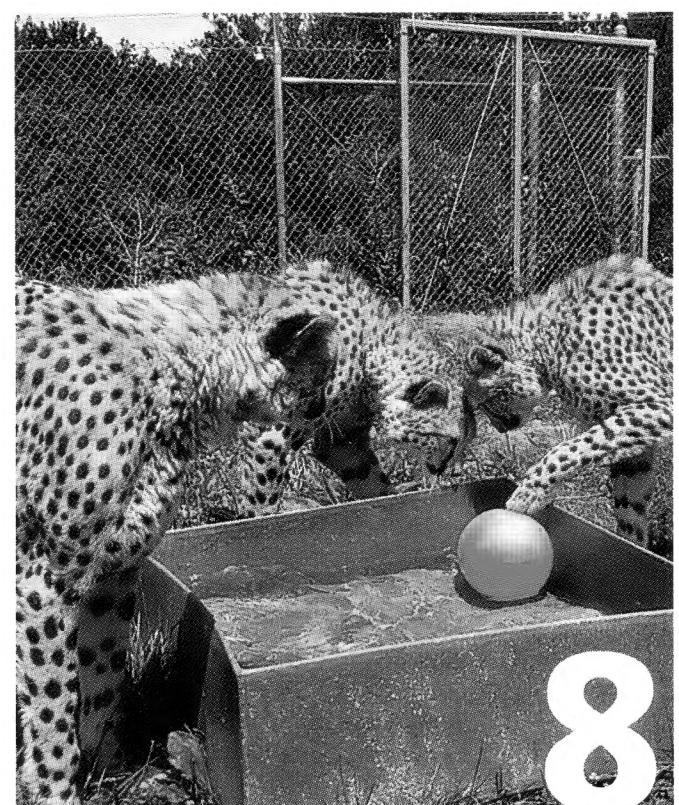
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WINTER 2017-2018
DEPARTMENTS

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PHOTO COURTESY OF KEN BOHN, SAN DIEGO ZOO GLOBAL



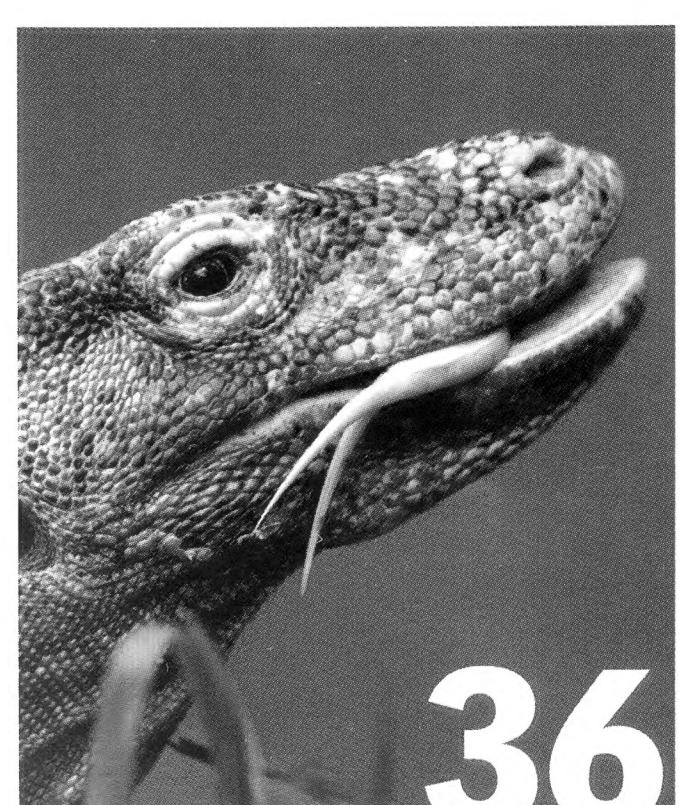
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ABBY WOOD/NZP



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BARBARA STATAZ/FONZ PHOTO CLUB

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FONZ Executive Director Lynn Mento looks back on a spectacular year, thanks to the support of members. Zoo Director Dennis Kelly lauds the incredible staff of animal keepers and the work they do.

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ZooLights, powered by Pepco, is coming, along with camp registrations for next summer, some great new animals on exhibit, and a stunningly cool exhibit on electric fishes at Amazonia.

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Red pandas aren't really pandas, but they are really cool creatures! Plus, two other animals that love it when the temperature drops.

30 FONZ

Camp registrations, home-school classes, and a call for your FONZ stories.

36 Zoo View

Photographing the komodo dragon requires some special tricks to avoid reflections off the glass walls of the exhibit. Also required? A fair amount of patience.

WHAT ARE FRIENDS FOR?

It's tempting around this time to look back on the previous year. At FONZ, we could not be more proud of everything we've accomplished together in 2017—thanks to your support. The numbers are truly impressive.

The Conservation Nation program raised \$100,000 in donations to fund 13 projects, including radio-transmitting tags for the Chesapeake Bay's iconic brown pelicans, and a program to release endangered *Limosa* harlequin frogs into their native habitat.

More than 7,500 children and adults attended the Zoo's camps, classes, birthdays, school events, and SCBI programs. Special events like ZooFari, Zoo Uncorked, and Boo at the Zoo (among many others) attracted 99,000 more. Volunteers at the Zoo contributed nearly 60,000 hours,

representing more than \$2.3 million in in-kind service. Some 4,400 FONZ members attended member-only events, including 3,100 for Bei Bei's birthday alone. More than 204,000 people rode the Speedwell Conservation Carousel!

Thank you all so much for making this happen. This is a community in which you, the members of FONZ, give and get. You contribute your time, passion, and resources to help save species. In exchange you become part of something truly special.

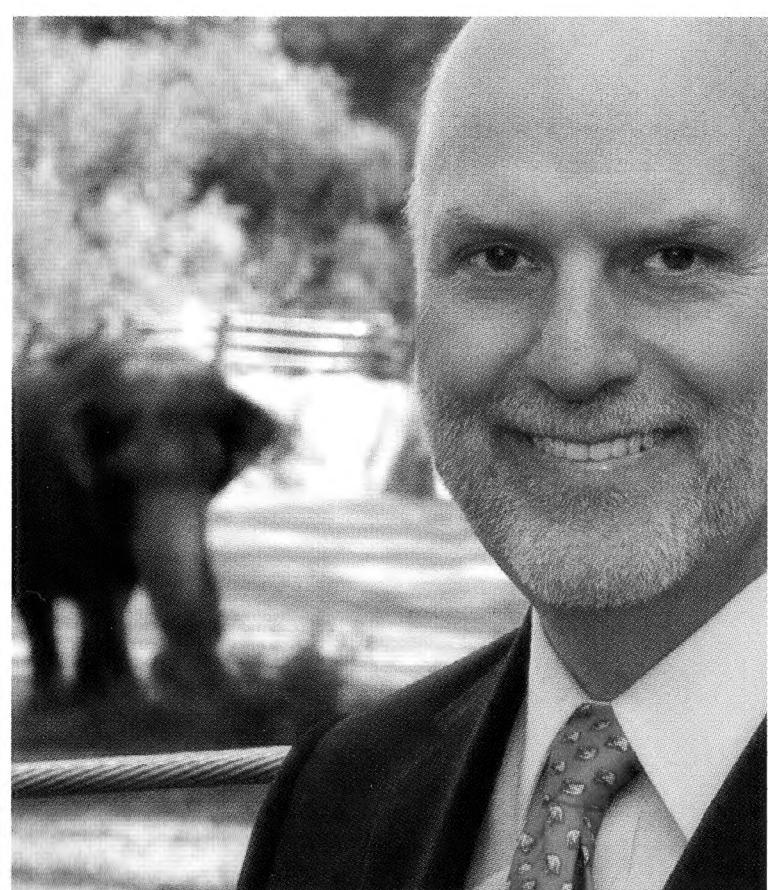
We're proud of all that FONZ members have accomplished this year, and we're looking forward to an amazing 2018. That's the 60th anniversary of FONZ, by the way, and we've got some great things planned to celebrate. From all your friends at FONZ — thank you, and we're so looking forward to what we can accomplish together in '18!



COURTNEY SMITH/FONZ

Lynn Mento, Executive Director
Friends of the National Zoo

A SHOCKINGLY GOOD STAFF



MEGHAN MURPHY/NZP

Dennis Kelly, Director
Smithsonian National
Zoological Park

I recently completed my first year as chair of the Association of Zoos and Aquariums, and I could not be more proud to represent the Smithsonian's National Zoo in that esteemed group. One big reason the Zoo has such a strong reputation—both in terms of creating an engaging experience for visitors and helping save species around the world—is our amazing staff of animal keepers. You may meet them during animal demonstrations, but most of their work happens behind the scenes. Our team feeds animals, conducts positive reinforcement training, leads invaluable animal behavioral research studies, and creates innovative enrichment activities to keep our animals active and healthy.

In August, we were proud to host the annual conference of the American Association of Zoo Keepers. It was our first time hosting the event, and a 20-person conference committee spent about four years planning it. Some 300 zoo and conservation colleagues from around the world attended. Special thanks to Kenton Kerns, assistant curator at the Small Mammal House, who served as conference chair.

We often get questions on how our stellar staff got their start in animal care and conservation. In October, the Smithsonian Conservation Biology Institute hosted Conservation Discovery Day to open doors and minds to the professional possibilities within the conservation field. This sci-tacular day included hands-on activities, research demonstrations and career panel discussions with conservation biologists, field ecologists, research scientists, veterinarians and animal keepers.

One buzzworthy new addition to the Zoo where you might see those animal keepers is at our new Electric Fishes Demonstration Lab at Amazonia. The exhibit is extremely cool, with an electric eel and several knifefish species, interactive elements, and innovative video screens that give a visual and audio representation of the charges the fish create. We are extremely proud of the new exhibit, and we hope you are too—your contributions helped fund and bring the exhibit to life. It is another example of the amazing partnership between the Zoo and our valued FONZ members.

Winter Wonders at the Zoo

ZooLights, powered by Pepco

NOV. 24 TO JAN. 1

Half a million LED lights, crafted into glowing animal sculptures, create an electrical extravaganza that has become one of D.C.'s most cherished holiday traditions. New this year: the Glow Zone, a kids' play area featuring light-up games and more. (ZooLights is closed Dec. 24, 25, and 31.)

fonz.org/zoolights



MARK VAN BERGH, N2P



PETER WINKLER/FONZ



GRUMP

Wild Gifts, Serene Shopping | ZOO SHOPS

Save species and avoid crowds while finding fabulous presents for the nature lovers in your life. Zoo shops are open 10 a.m. to 4 p.m. every day of the week, with extended hours during ZooLights.

GRUMP Art and Crafts

DEC. 15-17, 5-9 P.M.

You'll feel anything but grumpy as you explore this holiday market at the Zoo's front gates—finding cool, one-of-a-kind gifts crafted by local artisans. fonz.org/grump

A Shocking Exhibition | ELECTRIC FISHES

Swim down to Amazonia and dive into our brand-new Electric Fishes Demonstration Lab, a multisensory exhibit boasting a five-foot-long **electric eel** and two species of **knifefish**. You'll go away glowing! fonz.org/electric



ROSHAN PATEL/NZP

Sweet and Smart | NORWAY RATS

Scamper over to the Think Tank to meet Donut, Muffin, and Cupcake—the Zoo's new **Norway rats**. Watching them tackle problems and navigate through their exhibit will spur you to rethink these rodents.

fonz.org/newrats



ERIN STROMBERG/NZP

Baby Faces | SMALL MAMMAL HOUSE

The first **screaming hairy armadillo** babies in the Zoo's history are enchanting visitors, as is a **porcupette**, the offspring of prehensile-tailed porcupines.

fonz.org/smh



CLYDE NISHIMURA/NZP

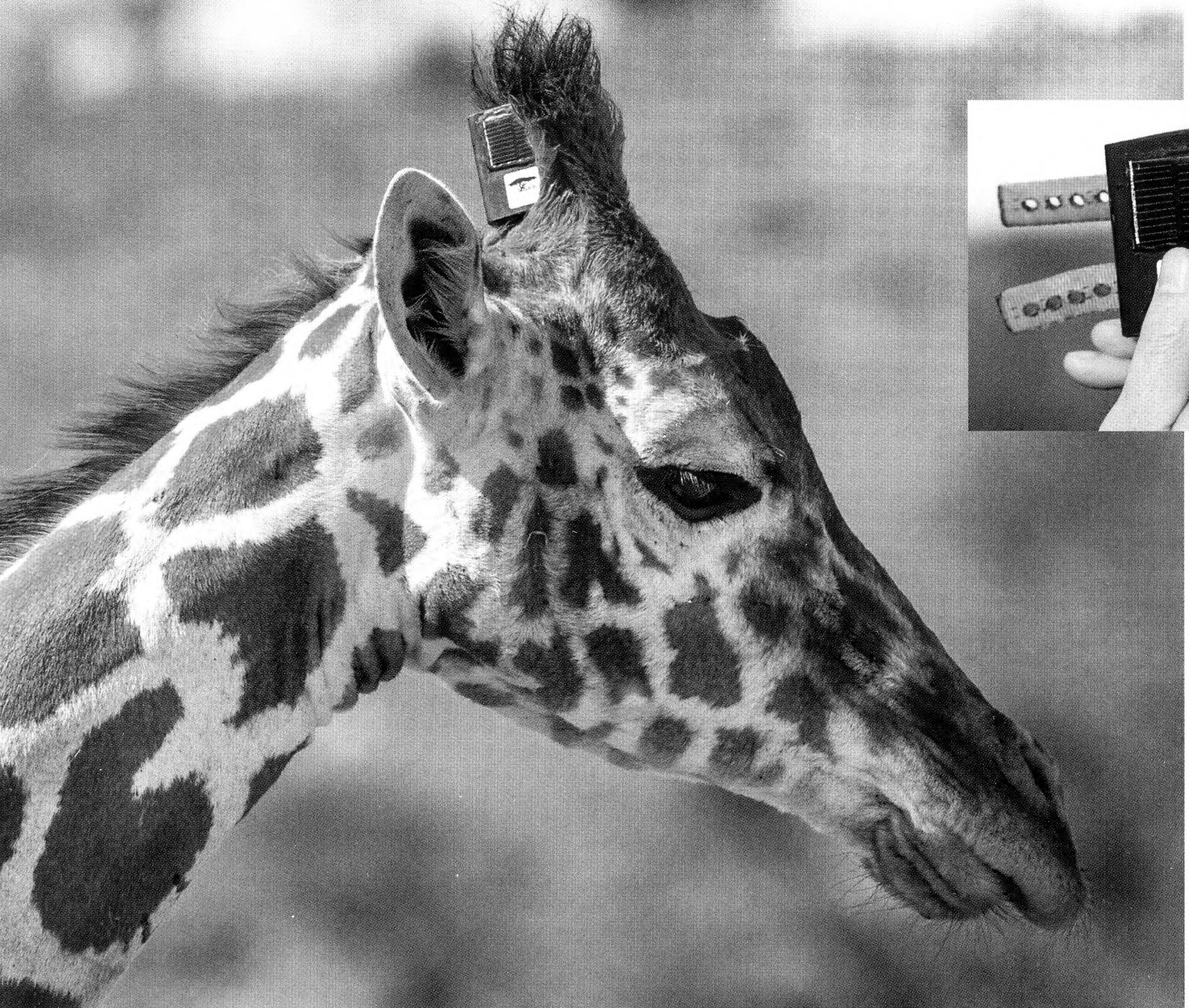
Summer's Coming! | CAMP REGISTRATION

Warm breezes and long days may seem far away, but registration for coveted spots in our Summer Safari Day Camp begins on **JAN. 30** (FONZ Premier Plus and above) or **FEB. 6** (all FONZ members). fonz.org/summer

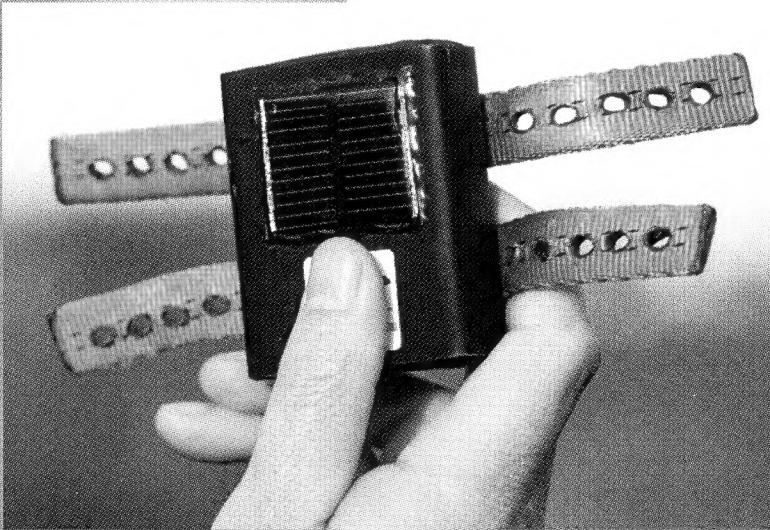


FONZ EDUCATION DEPARTMENT

An Innovative Approach to Track Giraffes



PHOTOS COURTESY OF KEN BOHN, SAN DIEGO ZOO GLOBAL



Giraffes seem like they'd be a natural for radio-tracking collars—they have such long necks to work with. But those necks actually pose a problem: when giraffes bend down to drink, the collars fall off. This June, SCBI scientists tried a new approach, by securing collars around the ossicones—the horn-like structures on top of a giraffe's head. So far, the team has collared 11 reticulated giraffes in Kenya, working with a team of local and global conservation organizations. The collars are solar-powered and tiny, yet able to send hourly GPS locations for the giraffes.

SCBI scientist Jared Stabach explains how the first wave of animals were tagged. "We worked very closely with the Kenya Wildlife Service, whose experienced vets took the lead on sedating and handling the animals. We dart the animals with an immobilization drug, then hang back and wait until it looks like the drug is taking effect. When we know it's ready to fall, the capture team of four or five people goes in with ropes to put around the animal's legs to help it safely lie down on the ground. We then give the animal oxygen and take bio-measurements and blood, hair, and skin samples while the units are attached to an ossicone. It usually takes about 10 minutes."



New at the Zoo

The Meller's chameleon can grow up to two feet long, with a tongue that extends 20 inches to snag prey like grasshoppers, locusts, crickets, or worms. Like all chameleons, Meller's chameleons can change colors, but they don't do so for camouflage. Instead, they change based on their mood: bright colors for courtship, dark with black spots when they're angry or stressed. Drop by the Reptile Discovery Center to see one.



Are You Ready for a Brand-New Beak?

GIL MYERS/NZP

Abyssinian ground hornbills don't have teeth—they eat by picking up prey with their beaks, tossing it up, and swallowing it whole. When the lower beak

on Karl, a 27-year-old hornbill at the Zoo, wore down, he had problems eating. The Zoo's vets tried making replacements by hand, but they wouldn't last longer than about three weeks. Then the team reached out to the Smithsonian's National Museum of Natural History, which provided the skeleton of a hornbill that had lived at the Zoo in the 1930s. The Zoo team analyzed the skull and generated a replacement beak on a 3-D printer. After five months of fittings and careful refinements, the team was able to attach the new prosthetic beak, and Karl is now eating normally again. *You can see Karl at the Cheetah Conservation Station.*



CHRISTIE SAMPSON / CLEMSON UNIVERSITY

ASIAN ELEPHANTS UNDER THREAT

SCBI researchers are working with conservation officials in Myanmar to study how elephants interact with people. There are only 30,000 to 50,000 Asian elephants left in the wild, and only about 2,000 in Myanmar (compared to about 500,000 African elephants). So far, the team has put radio-tracking collars on 19 Asian elephants to study their movement. One ominous development—poachers are now taking some elephants for their skin, which can be turned into ointments and lotions for the traditional Chinese medicine market. (There is no evidence those products have any medicinal value.) Ivory poaching only impacts males, but this new type threatens females as well, which has a bigger long-term impact. Each female can give birth to about six calves during her lifetime. In addition to tracking animals, the program is spreading the word in Myanmar about how poaching can affect elephant populations.



CHRISTIE SAMPSON / CLEMSON UNIVERSITY



JOHN MCEVOY/NZP

WANT TO HELP?

Make a donation to FONZ's Conservation Nation program, which funded the tracking collars. conservationnation.org



I Scream, You Scream, They Don't Scream

Two screaming hairy armadillo pups were born in August at the Small Mammal House. These are the first pups ever born at the Zoo, and we're screaming with excitement! Native to South America, screaming hairy armadillos don't actually scream, but they do make a squealing noise when they're threatened. *You can see the pups at the Small Mammal House.*

ROSHAN PATEL/NZP

CAT POWER

To keep the juvenile cheetahs at SCBI engaged, the keepers give them a pool of water to play with—something they'd likely encounter in the wild. They even get toys like floating balls to check out. Because cheetahs are predators, they're wired to focus on objects that move around them, which could be prey. By moving the pool in and out of the enclosure, and putting different objects in it, keepers make sure that SCBI cheetahs stay engaged. SCBI is a leading center for cheetah research and breeding.



ROSHAN PATEL/NZP

BACK TO THE WILD



WILLIAM PITTS/NZP

Few moments in conservation biology rival returning a species to the wild. That happened in September, when two female Guam rails bred at SCBI were released on an island north of Guam called Rota. The release marks a turning point for Guam rails, which are no longer found in their original habitat. They were killed off by brown tree snakes, a highly aggressive invasive species. More than 30 years ago, when the bird population was dwindling, 24 rails were taken from Guam to start a breeding and recovery program. Today, there are more Guam rails in the wild—some 200, on two islands near Guam where there are no brown tree snakes—than there are in human care.

Stick Out Your Tongue and Say "Grrr"

The Department of Wildlife Health Sciences is the Zoo's on-site animal hospital, where a team of veterinarians, pathologists, technicians, and keepers provide world-class care for all animals in the collection, along with complete screenings of all animals coming in or leaving. As the numbers below—listing the procedures provided in a typical year—demonstrate, it's a big job.

Incoming animals received:

55

Outgoing animals cleared:

100

Vaccinations:

200

Radiology series:

300

Anaesthesias:

400

Surgeries:

20

Physical exams:

1,170

Blood analyses:

650



ALYSON SNODGRASS/NZP

Teresa Vetick

Curator of Horticulture

Q: What do you do at the Zoo?

A: I'm responsible for the horticulture for the Zoo's 163-acre facility. I work with Zoo leadership and an amazing team to maintain the look and feel of the park, and I work with planning, design, and construction teams to create engaging and high-quality exhibits, along with an inviting park atmosphere. We also oversee pest management, keeping rodents and some insects in the park to a minimum, in a way that's safe for our animals.

Q: How did you wind up working here?

A: I've been at the Smithsonian's National Zoo since 2005, but I've been doing this since 1980. When I was in high school, I worked the check-out counter at a nursery. I went to the University of Maryland, to the Institute of Applied Agriculture. Later, I worked for the National Academy of Sciences on Constitution Avenue, handling their landscaping, and then went to the Baltimore Zoo. It was a big switch going from formal government buildings, where everything has to be neat and precise, to a zoo setting, where things aren't perfect and you're aiming for a more natural look and feel, like you're out in nature. One of my co-workers at the Baltimore Zoo said, "The animals are the star attraction, but the plants set the stage." That stuck with me.

Q: What's the most challenging part of your work?

A: There are a lot of tough aspects. The Zoo gets more than 2 million visitors a year. We're open seven days a week, 364 days a year (every day but December 25), with a lot of large events, so the landscape never gets a rest. But to be honest, the biggest challenge is the white-tailed deer. There are so many of them, way more than in the past, and they eat anything and everything. You want to have an amazing, diverse palette of plants, but we're really limited to the ones that are deer-resistant. When you walk through the Zoo, if you see some plants that are repeated, that's because we've tried it and the deer leave it alone. At least for now.

Q: What's your favorite part of the job?

A: Working in an environment surrounded by amazing plants and animals and the passionate people from the many departments around the Zoo and FONZ.





MARK IBRAHIM/FONZ

Q: What's the coolest or strangest thing you've learned working at the Zoo?

A: I really love that we were able to bring Uncle Beazley, the triceratops sculpture, to the Zoo. That used to be on the Mall, in front of the Museum of Natural History. I climbed on it when I was a kid. After that, he got moved around to a bunch of places and ended up at the Zoo. He sat at the hospital for many years, and someone on my team suggested bringing him to the area near Lemur Island as a fun feature for kids. We put a garden around him with sword ferns, Norfolk Island pines, Egyptian papyrus, and several other plant species. It's neat hearing kids when they see him—they're so excited.

Q: If you could tell Smithsonian Zoogoer readers one thing, what would it be?

A: It's really important to get this across: I could not do what I do without the amazing folks around me. They are some of the most dedicated, passionate people that I have had the pleasure to work with. The Zoo is a wonderful place of meandering paths, vistas, and green spaces, and this team works hard to preserve and improve the site conditions and the overall aesthetics of the park.



MEGHAN MURPHY/NZP

Q How does your work help the Zoo save species?

MARK IBRAHIM/FONZ

A Animals live in plant habitats, and when we're creating their environments here at the Zoo, we work really hard to make sure we're meeting the needs of the animals, keepers, and visitors. We know we've been successful when the animals are exhibiting their natural behaviors in their exhibit and guests can feel immersed.

ALMOST EVERY ANIMAL HAS TEETH. They can act as knives, scissors, grinders, grabbers, or ornaments. Scientists can tell a lot about an animal just by looking at its teeth. Before there were genetic studies, the size and arrangement of an animal's teeth were often how taxonomists classified species. Carnivores have a certain set of teeth, omnivores have another set, and some ungulates like cows have no upper teeth in front.

Teeth can also hint at a species' evolutionary history. Red pandas and giant pandas, for instance, have teeth like meat-eaters. But about five million years ago—relatively recently in terms of evolution—they started eating plants. That change has yet to show up in their mouths, which still look like they could handle at least an occasionally meaty meal.

Teeth are one of the characteristics that distinguish between a frog and a toad. (Frogs have them, toads do not.) Salamanders have an extra row of teeth in the roof of their mouth to help them clamp down on slimy prey like worms and crawdads. Snakes are famous for having fierce-looking fangs, but even pit vipers have some workaday teeth in their mouth to hold and manipulate food once the fangs have done their job. Constrictors, which don't use venom at all, also rely on teeth to help them hold their prey still long enough to get a coil of their body snugly around it.

Birds and turtles have "egg teeth" on their beaks that they use to break out of their eggs as babies, but these are not true teeth. After hatching, the egg teeth aren't any use to the young turtles and birds and fall off within a few weeks.

Rodents' incisors grow constantly. This is most obvious in animals like the beaver,

Teeth make up a tiny percentage of an animal's body mass, but they are vital in determining its diet, longevity, and quality of life. They're also a complex and demanding part of how the Zoo cares for animals.

The fangs of venomous snakes like this cottonmouth are not technically teeth. Snakes shed them each year, just like skin.



NOTHING
BUT
THE
TOOTH

BY BRITTANY STEFF



ONE OF THE MOST
STRAIGHTFORWARD
WAYS TO PREVENT
TOOTH ISSUES IS
TO MAKE SURE THE
ANIMALS ARE USING
THEIR TEETH AS
NATURE INTENDED.

with its constant woodworking, and the naked mole-rat.

Naked mole-rats, which live in complex tunnels underground, value their teeth more than most animals do. A third of their cognitive sensory processing has been allocated to their teeth. It makes sense. Their teeth, and their whiskers, are out in front of them as they move along the tunnels in their subterranean world. They have terrible eyesight and short forearms, so their teeth are their best tools for sensing the terrain in front of them. They can move each tooth independently in order to manipulate dirt or food.

In the wild, teeth often determine how long an animal lives. Without teeth, animals can't eat. When something goes amiss with a tooth, it can literally be the difference between life and death. Which is why, in zoos, part of good animal husbandry focuses on making sure nothing goes wrong with the teeth in the first place.

Oral Exams

One of the most straightforward ways to prevent dental issues is to make sure the animals are using their teeth as nature intended. Many animals' diets include abrasive substances—bone, gristle, vegetables, wood fiber—that help scrub teeth.

Mike Maslanka, head of the Department of Nutrition Science at the Zoo, explains that, like nutritional needs, dental needs vary by species. "For carnivores, the physical scrubbing action associated with eating bones and whole prey items helps. For primates, we rely on their biscuits, which are designed to provide the nutrients and fiber they need, along with a bit of an abrasive texture, for scrubbing. Hoofstock is trickier, because browse (twigs and shoots of vegetation) only provides a little bit of natural abrasion. Rodents are pretty easy, because they're gnawers by nature."

If they're not, the vets are prepared to do a full dental cleaning or to call in an outside veterinary dental expert, if necessary, for more in-depth dental procedures like root canals.

For some animals, keepers can take a more active approach to dental care. Keepers actually brush some animals' teeth using veterinarian-approved toothpaste:

gorillas, orangutans, elephants, seals, and sea lions all get routine teeth-brushings.

For some animals, teeth falling out may not be a problem—they may even be designed to fall out. Take the elephants. Elephants get six sets of teeth throughout their lives. At any given time, they have four teeth: all molars, which are giant slab-shaped teeth with ridges on them for grinding down tough vegetation. New teeth grow in from the back, in a conveyor-belt process, pushing the old teeth out. The old ones eventually fall out a chunk at a time. New teeth come in faster when they're younger, and the last set has to last the elephant for the rest of its life. Those teeth never really fall out, they just slowly wear down, potentially causing problems.

This is why the elephants, like almost every other large animal at the Zoo, are trained to open their mouths on command. Animal care staff keep a sharp eye on the goings-on in their charges' mouths.

Gorillas and orangutans, being great apes like humans, have the same number of teeth as we do. Checking teeth is a regular part of their care, and the intelligent, willing-to-learn animals are being trained to allow keepers to brush their teeth. That's proving fun for keepers and animals alike and will likely boost long-run dental health.

Keepers can brush the seals' and sea lions' teeth, but this is done more to prepare the animal to hold a dental radiograph machine in its mouth if necessary—something gray seal Gunther did successfully earlier this summer. (All training at the Zoo is based on positive rewards and completely voluntary—the animals get treats for cooperating, and they can walk away at any time.)

A Crocodile's Smile

At the Reptile Discovery Center, caring for teeth goes beyond just making sure that animals get abrasive substances to chew. Crocodilians—crocodiles, alligators, caimans, and gharials—don't chew their food. Instead, they use their teeth to trap and tear their prey. Much like a shark, crocodilians constantly replace their teeth throughout their lives; each tooth can be replaced up to 50 times.



Some great apes can be trained to allow keepers to brush their teeth.

ANN BAIUORF/NZP



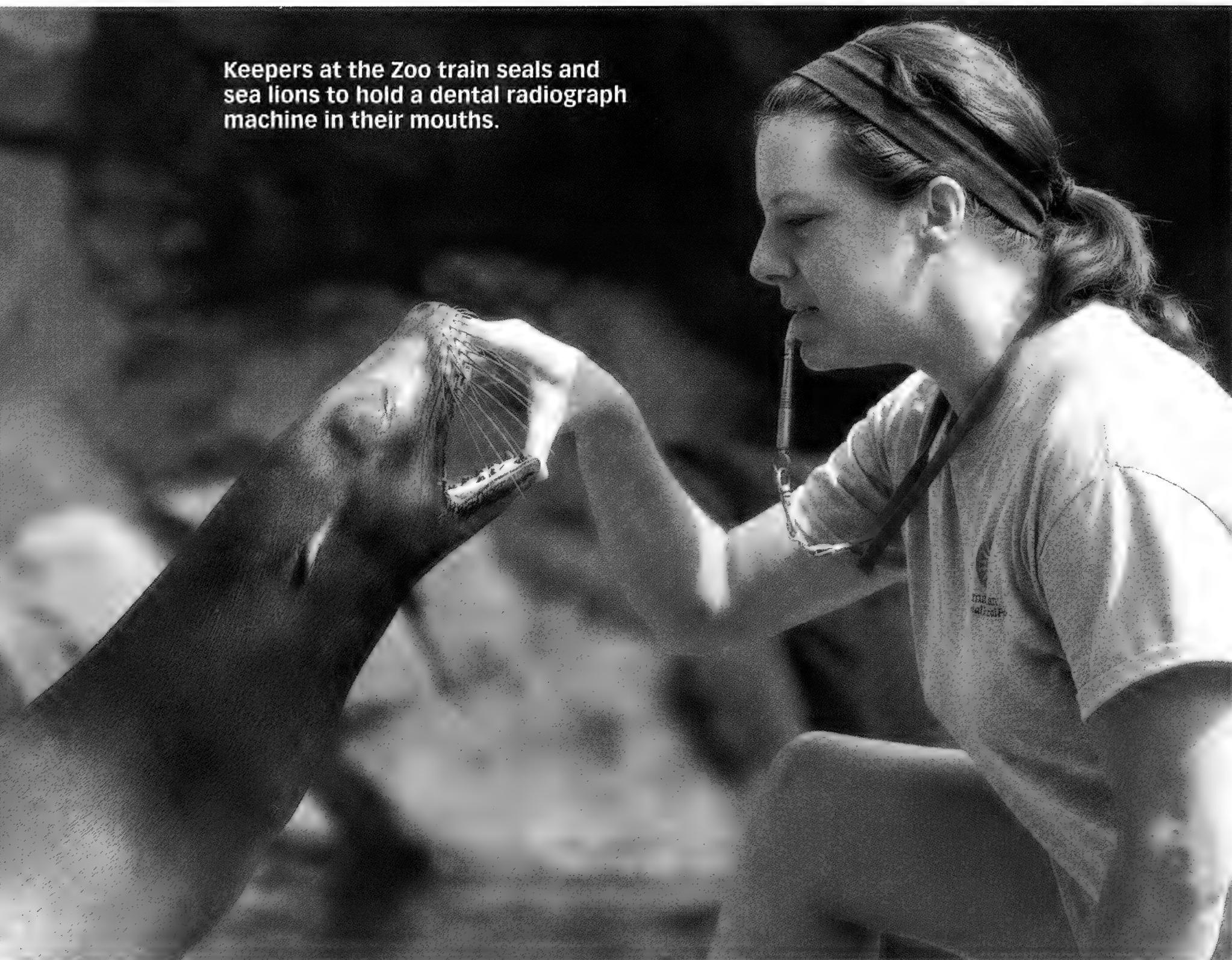
Crocodilians grow new teeth throughout their lives; each tooth can be replaced up to 50 times.

MEGHAN MURPHY/NZP

NOTHING BUT THE TOOTH

ALL ANIMALS AT
THE ZOO GET ROUTINE
EXAMS ALONG WITH
A COMPLETE ANNUAL
(USUALLY) PHYSICAL.
AT EVERY EXAM,
THE VETS EXAMINE
THE ANIMAL'S TEETH
TO MAKE SURE THEY
ARE CLEAN, HEALTHY,
AND IN GOOD ORDER.

Keepers at the Zoo train seals and sea lions to hold a dental radiograph machine in their mouths.



MARK VAN BERGH/NZP

All that tooth replacing means that there are ample opportunities for tooth development to go awry.

"If their teeth are discolored and beginning to stick out to the side, that's an indication that they're not getting the right vitamins or enough ultraviolet light," explains reptile keeper Matt Evans.

Keepers have to be familiar with what crocodilian teeth should look like to make that determination. Crocodiles always have some of their teeth hanging out; it's one of the things that distinguishes them from alligators, which can hide all their teeth away in a closed mouth.

Calcium is the mineral that crocodilians, like humans, need the most for healthy teeth. In the wild, they get calcium from the bones of their prey. The animal welfare team at the Zoo tries to make sure that its crocodilians get plenty of calcium as well, either in the form of bones, whole prey items, or calcium supplements in their food.

Crocs aren't the only reptiles whose teeth are tricky business. Though not true "teeth," a venomous snake's fangs sure

look like them to a layperson. Snakes actually shed their fangs, along with their skin, several times a year. Depending on how recently a fang was shed, it can actually harbor some of the snake's active venom, even after it has detached from the snake's mouth. Keepers cleaning a snake's habitat have to watch out for the loose fangs. Even without its snake present, a lone fang can deliver a nasty—sometimes nearly fatal—bite.

Biting Observations

Most animals use their teeth every day. And, as with humans, how they use their teeth can cause wear and tear and—potentially—problems.

Like ours, animals' teeth can wear unevenly. On animals like horses, bison, and antelopes, this can result in painful points or waves on their teeth. Veterinarians use a file to smooth them down, a process called floating the teeth. Some domestic horses will tolerate this being done while they're awake. But most Zoo animals—including Przewalski's horses, which have been known to separate unwise keepers from their fingers—have this done under sedation. Typically, floating is done during a routine annual exam, though if keepers notice a problem, veterinarians will address it promptly.

Carnivores' carnassials—their chewing teeth in the back of their mouths—are sharp and offset, like the blades of a pair of scissors. This alignment allows them to shear meat off the bones of their prey, and helps keep the teeth razor sharp.

That razor sharpness can work against the animal as well as for it. Sometimes, those teeth become misaligned, or maloccluded in dental language. In some animals, this can result in a painful condition called focal palatine erosion, in which the teeth actually begin to poke holes in the roof of the poor animal's mouth.

This can happen in nearly any carnivore, but is most common in cats—especially cheetahs. It happens in the wild, where it can be fatal. If the teeth grow long enough to actually puncture the bone on the roof of the mouth, abscesses and infections can form, eventually killing the animal. But focal palatine erosion is more common in zoos



Elephants only have four teeth at any given time—giant slab-like molars designed to grind vegetation. They're surrounded by pink flesh in this photo.

JESSIE COHEN/NZP

than in the wild. This may be both because animals in zoos live longer, and geriatric animals have more teeth problems, and because wild animals eat more bones and whole prey items than zoo animals often have access to. The Zoo treats the issue by filing down the teeth when necessary—while the animal is safely sedated.

When older animals, or those with bad teeth, lose their teeth, the Zoo is able to step in to help the situation. As Kenton Kerns of the Small Mammal House explains, “The veterinary team thinks about every tooth very strategically and very holistically. They’re not going to pull a tooth if they don’t have to. But when a tooth does have to come out, to alleviate pain or the risk of infection, we’re very

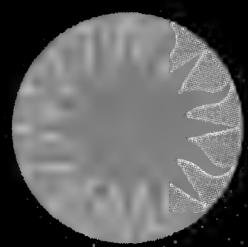
good at helping animals compensate. We can grind up their food for them, or give them things that are cooked, or are easier to chew.”

Many animals’ teeth change over time, a process that’s hard to study in the wild. Zoos have a unique opportunity to document the rate at which animals get their teeth. Great ape keeper Erin Stromberg is working with a researcher in Malaysia on a study about orangutan teeth. Redd, the Zoo’s youngest orangutan, was born in September 2016. Since his birth, Stromberg has checked his teeth every day, documented when each one emerged starting when he was four months old, and sent that data to the researcher. This information will help researchers figure

out the age of wild, young orangutans—especially those tragically orphaned that end up in human care.

“When young orangutans come into rehabilitation centers, conservationists need to know what foods they should be eating and what developmental stage they’re at,” Stromberg says. “The orangutan orphans don’t have known birthdates, and they’re often sick or malnourished, so you can’t go based off their size. A tooth chart can help accurately age orangutans. This is one of the ways that the work we do here at the Zoo, with our orangutans, has a direct, positive, real-time effect on apes in the wild.” **SZ**

—Freelance author BRITTANY STEFF is a contributing writer for the Zoo’s website.



Smithsonian Campaign



"Monkey Business"—the Gala for the Smithsonian's National Zoo and Conservation Biology Institute in Partnership with Friends of the National Zoo—went off in wild style on September 28, 2017.

Harrison Ford and Betty White (in absentia) were presented with the James Smithson Bicentennial Medal for their distinguished contributions to the preservation of wildlife and the environment. Five hundred global philanthropists, policymakers, industry leaders, and diplomats gathered to mingle with animals, and each other, to support the Zoo and global conservation projects.

Harrison Ford with
Smithsonian Secretary David Skorton



Council Corner In October, Council members enjoyed a special reception and lecture by Dr. Joshua Plotnik in the Elephant Community Center. Dr. Plotnik is the head of elephant research at the Golden Triangle Asian Elephant Foundation in Thailand and the leader of Think Elephants International.

The Council Membership Program has exclusive, fun events coming up: the Annual Donor Dinner, ZooLights Holiday Reception, van tour to SCBI, and other great 2018 events. We'd love to have you join us. If you'd like to know more about the Council Membership Program, please contact Katharine Kane at kanek@si.edu.

Become a Council member today.



2018 CALENDAR

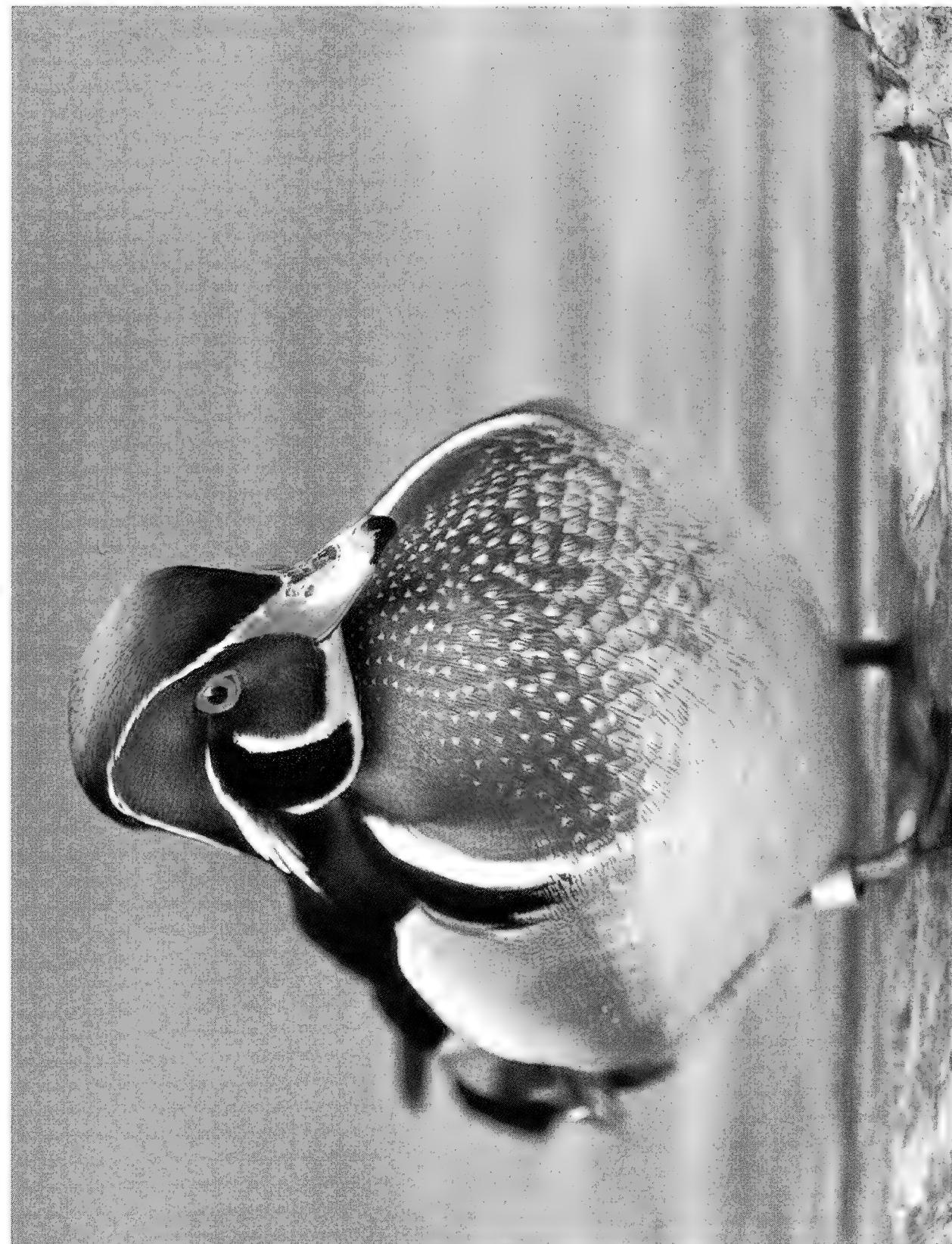
FONZ | FRIENDS OF THE NATIONAL ZOO

60TH ANNIVERSARY | 1958-2018



No water,
No life.
No blue,
No green.

—Oceanographer
Sylvia Earle



ESSENTIAL
INGREDIENTS

Thank You for Being a Friend

Your FONZ membership helps the Smithsonian's National Zoo and Conservation Biology Institute save species—at home and around the globe. Thanks to you, FONZ provides essential annual support that helps the Zoo care for animals, conduct pioneering research, undertake conservation projects all over the world, and educate visitors about the vital work of saving species.

FONZ also oversees gift shops and food concessions that provide revenue for the Zoo, and we produce popular special events that raise both funds and awareness. We create an array of educational opportunities, from kids' camps and classes to encounters between visitors and devoted and highly trained volunteers.

We help guests in diverse ways, staffing information desks, attractions, shuttles, and more.

We couldn't possibly do what we do without your support. Thank you.

To learn more about your membership benefits and opportunities to boost your involvement with FONZ and the Zoo, please see the notes throughout the calendar as well as on the back cover. You can also visit fonz.org/benefits.

One of my favorite parts of editing *Smithsonian Zoogoer* is marvelling at the incredible

images taken and generously shared by members of the FONZ Photo Club. More than a dozen of them adorn this calendar. Warmest thanks to everyone who contributed!

As you wade through the year, I encourage you to notice a vital but easily overlooked aspect of each photo—water. Again and again

over the past few years, I've been struck by how often it appears in photos from the Zoo.

So I made it this year's calendar theme.

I hope you'll not only enjoy the images, but that they'll underscore the importance of water to wildlife—and the need to keep Earth's water supplies healthy. After all, as oceanographer Sylvia Earle often points out, we can find plenty of water in the universe without life. But we've yet to find life without water.

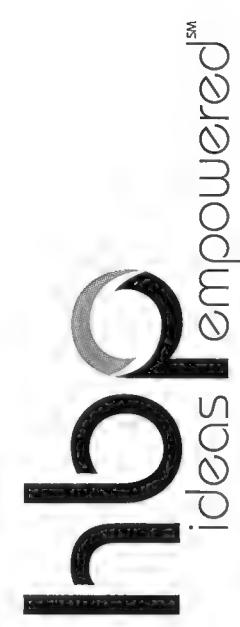
— Peter Winkler, Editor



CHERRY WYMAN

THE FONZ MISSION

Friends of the National Zoo is the nonprofit partner of the Smithsonian's National Zoo and Conservation Biology Institute. FONZ helps the Zoo save species by raising funds to support its mission, providing educational and fun experiences for visitors, and inspiring our members and guests.



Many thanks to HBP, which prints and generously supports this calendar and *Smithsonian Zoogoer* magazine.

Java 2018



SUNDAY

MONDAY

THURSDAY

FRIDAY

SATURDAY

Gray Wolf

The calendar
for members of
FONZ
FRIENDS OF THE
NATIONAL ZOO

NEW YEAR'S DAY

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MARTIN LUTHER
KING, JR., DAY

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Safari Day Camp

registration opens for
Premier+ members.

Upgrade your
membership at fonz.org/camps
fonz.org/join to be eligible.

SIGN UP FOR SUMMER CAMP: Give your child an award-winning education opportunity at the National Zoo's Summer Safari Day Camp. Eight one-week sessions start in late June. Priority registration starts January 30. Camp sessions are also available for school breaks and one-day school holidays. Find out more at fonz.org/safari2018.

december 2017

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february 2018

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february

Asian Small-clawed Otter

Genus: *Aonyx*
Species: *cinerea*

Asian small-clawed otters spend most of their life on land, but they are excellent swimmers. They have dense fur that traps air, forming an insulating layer that keeps them warm even in cold water. When they groom themselves, they reintroduce air in their layers of fur. They also close their ears and nostrils when they swim. And those pads on their paws? They're ideal for groping around the bottoms of streams and rivers for the mollusks and shellfish they eat. **See them at Asia Trail.**

SATURDAY

3

FRIDAY

2

THURSDAY

1

WEDNESDAY

8

TUESDAY

7

MONDAY

Safari Day Camp
registration opens for
all FONZ members.
fonz.org/camps

6

SUNDAY

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The calendar
for members of
FONZ
FRIENDS OF THE
NATIONAL ZOO

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VALENTINE'S DAY

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PRESIDENTS' DAY

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january 2018

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march 2018

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KEEP YOUR MEMBERSHIP CURRENT:
FONZ members get benefits like free or discounted parking, exclusive access to Zoo events and previews, and priority registration for camps, classes, and events. Even more important, by being a member, you support the groundbreaking wildlife conservation work at the National Zoo and SCBI. fonz.org/members



march 2018

North American Bullfrog

Genus: *Rana*
Species: *catesbeiana*

Though they aren't part of the Zoo's official collection, North American bullfrogs are easy to find in the park. When the weather's warm, just look in the small pool across Olmsted Walk from the Reptile Discovery Center. (When it's cold, they hibernate in the mud at the bottom.) Male bullfrogs are extremely territorial, even wrestling with competing males who wander into a spot they've already claimed. The reason they're called bullfrogs? Their call is as low and resonant as a bull's.

PHOTO BY:
ROBERT CURRIE

SATURDAY

FRIDAY

THURSDAY

WEDNESDAY

TUESDAY

MONDAY

SUNDAY

SLEEP UNDER THE STARS, WAKE UP TO THE ROARS:
Sign up for a Snore & Roar sleepover this summer. Participants get a guided tour of an animal exhibit before camping out on the Zoo grounds. Most nights sell out, so register early! fonz.org/snore

The calendar for members of
FOONZ
FRIENDS OF THE
NATIONAL ZOO

NATIONAL ZOO
ESTABLISHED, 1889

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ZOO SUMMER
HOURS BEGIN
fonz.org/hours

ST. PATRICK'S DAY

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DAYLIGHT SAVING
TIME BEGINS

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february 2018

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PASSOVER BEGINS AT
SUNDOWN.

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april 2018

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Asian Elephant

Genus: *Elephas*
Species: *maximus*

Asian elephants in the wild can consume about 50 gallons of water each day. Their trunks—which they use to take up water and then squirt it into their mouths—can hold two gallons.

Asian elephants are less susceptible to ivory poaching than African elephants, because many males do not develop the large prominent tusks that make them a target. Yet they are still endangered, due to habitat loss and fragmentation. Only 30,000 to 50,000 are left in the wild. *See the Zoo's Asian Elephants at Elephant Trails.*

PHOTO BY:
JUDY YOUNG

SATURDAY

FRIDAY

THURSDAY

WEDNESDAY

TUESDAY

MONDAY

SUNDAY

**Snore & Roar
and Scout Snooze**
registration
opens for all
FONZ members.
fonz.org/overnights

EASTER MONDAY

3

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EASTER SUNDAY

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FONZ FOUNDED, 1958

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EARTH DAY

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ARBOR DAY

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March 2018

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May 2018

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The calendar
for members of
FONZ
FRIENDS OF THE
NATIONAL ZOO

COME TO EASTER MONDAY:
A DC-area institution, the Easter Monday celebration has
taken place every year since 1891. Highlights include an egg
hunt, field games, animal demonstrations, and a visit from
the Easter Panda! fonz.org/easter

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29



SUNDAY

TUESDAY

WEDNESDAY

FRIDAY

SATURDAY

Clown
Anemone Fish

The calendar
for members of
FONZ
FRIENDS OF THE
NATIONAL ZOO

Genus: *Amphiprion*
Species: *ocellaris*

Clownfish have a symbiotic relationship with anemones. They live among the anemone's poisonous tentacles, gradually touching the tentacles with different parts of their bodies and building up a protective layer of mucus on their skin. Because clownfish can live in such a lethal environment, they're safe from predators, and they get the occasional meal when other fish get too close. In exchange for shelter, clownfish help anemones by removing parasites. **You can see clownfish in the Zoo's Coral Lab exhibit, part of Amazonia.**

PHOTO BY:
WILLIAM O'BRIEN

april 2018

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STUFF YOURSELF SILLY
AND SAVE WILDLIFE: Come to
the annual ZooFari celebration, where
more than 100 top restaurants and
vintners in the DC area will be offering
tastings for a cause. Proceeds help
support the Zoo's mission to save
species. fonz.org/zooafari

june 2018

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June 201

Green Tree Python

Genus: *Morelia*
Species: *viridis*

Green tree pythons are non-venomous snakes with brilliant coloring that helps them blend in with the rainforest foliage in their native Australia and New Guinea. They can grow up to seven feet long, and though they don't have venom, they do have as many as 100 teeth. They also have a unique approach to attracting prey. The snake lies still on a branch and dangles its tail beneath it. When an animal comes to investigate, the snake strikes. **You can see the green tree python in the Reptile Discovery Center.**

PHOTO BY:
JESSICA A. ZALUZEC

may 2018

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july 2018

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SUNDAY
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TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY

ADOPT A SPECIES:
Looking for an unconventional gift idea for a dad or grad? Give a virtual adoption of one of the Zoo's endangered species. Packages range from \$50 to \$1,000—with an array of benefits—and proceeds support the conservation work done by the Zoo and SCBI. fonz.org/adopt

The calendar for members of
FONZ
FRIENDS OF THE
NATIONAL ZOO

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WORLD OCEANS DAY

FATHER'S DAY

SUMMER SOLSTICE

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לכד 2018



Sumatran Tiger

Genus: *Panthera*
Species: *tigris*
sumatrae

Sumatran tigers defy the conventional wisdom that cats don't like to swim. In fact, Sumatran tigers will readily take a dip to cool off or escape flies, and they're capable of covering great distances in water—crossing rivers and lakes up to five miles wide. Tigers are critically endangered in the wild, but SCBI has been working with partner institutions in Asia on conservation programs since 1972. **See the Zoo's Sumatran tigers at the Great Cats exhibit.**

PHOTO BY:
DEBBY BALLARD

SATURDAY

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FRIDAY

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THURSDAY

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WEDNESDAY

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TUESDAY

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MONDAY

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SUNDAY

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The calendar
for members of
FONZ
FRIENDS OF THE
NATIONAL ZOO

CONSERVATION ON TAP:
The annual Brew at the Zoo event
offers beer tastings from more
than 70 craft breweries, plus great food,
animal encounters, and other fun.
fonz.org/brew

INTERNATIONAL
TIGER DAY
29

august 2018

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ausgabe 2018



SUNDAY

WEDNESDAY

FRIDAY

SATURDAY

TUESDAY

American Flamingo

The calendar
for members of
FONZ
FRIENDS OF THE
NATIONAL ZOO

GREAT GRAPES: At our annual
Zoo Uncorked event, you can
join esteemed local wineries for a
night in the park and raise a glass
for conservation.
fonz.org/uncorked

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WORLD
ELEPHANT DAY

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American flamingos—
also called Caribbean
flamingos—are one
of the largest of the
species, with adults
averaging five feet
tall. Native to the
Caribbean and the
northern coasts
of South America,
they are extremely
social, congregating
in flocks as large as
several thousand.
When it's time to
breed, the entire flock
will move together,
opening their wings
or lifting and turning
their heads, to get
everyone synchronized
to lay eggs as soon
as environmental
conditions are right.

PHOTO BY:
KATALIN KEREKES

July 2018

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September 2018

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September 2018

SUNDAY

MONDAY

WEDNESDAY

FRIDAY

THURSDAY

Hooded Merganser

The calendar for members of
FONZ
 FRIENDS OF THE
 NATIONAL ZOO

Genus: *Lophodytes*
 Species: *cucullatus*

Hooded mergansers, native to North America, prefer swamps, wooded lakes and ponds, and rivers. One of the few native ducks that feed mostly on fish, hooded mergansers have eyes that are well-adapted for seeing underwater. The ducks dive and propel themselves with their feet, finding small fish and crayfish mostly by sight. During courtship season, males' distinctive crests become more prominent. The biggest threat to hooded mergansers in North America is the loss of nesting habitat: mature trees near water.

ROSH HASHANA
 BEGINS AT
 SUNDOWN.

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PHOTO BY:
 JUDY YOUNG

august 2018

YOM KIPPUR BEGINS
 AT SUNDOWN.

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autumnal equinox

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october 2018

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friday

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saturday

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friday

CONSERVATION SENSATION:
 Each year, the SCBI campus in Front Royal, Virginia, is open to the public one weekend, giving visitors an up-close look at the amazing work scientists do.
fonz.org/conservation-discovery-day

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13

labor day

2

rosh hashana
 begins at
 sundown.

9

PHOTO BY:
 JUDY YOUNG



October 2018

SUNDAY

TUESDAY

THURSDAY

FRIDAY

100

The calendar
for members of
FONZ
FRIENDS OF THE
NATIONAL ZOO

Unlike tigers, lions in the wild swim only if they need to—for example, to cross a river or pursue prey. All lion and tiger cubs born at the Zoo go through a swim test when they're a few months old. The test ensures that, on the off chance the cubs end up in the moat surrounding the Great Cats exhibit, they are able to get themselves out. (The keepers are close at hand to serve as lifeguards.) **See the Zoo's lions at the Great Cats exhibit**

PHOTO BY:
KATALIN KERÉKES

2019 Birthday Parties and Winter Camp registration opens for Premier members. fonz.org/birthday, fonz.org/camps Upgrade your membership at fonz.org/join to be eligible

TRICK OR TREAT. Boo at the Zoo, a three-night event, celebrates Halloween with spooky trails, animal demonstrations, keeper talks, and more than 40 treat stations. All boys, girls, and ghouls welcome! fonz.org/booz

88

HALLOWEEN

268

4	5	6	7	8	9
11	12	13	14	15	16
18	19	20	21	22	23



november 2018

Australian Snake-necked Turtle

Genus: *Chelodina*
Species: *longicollis*

Snake-necked turtles are accurately described by their name—the neck of an adult is about half as long as its shell.

When threatened, this species doesn't retract its head back into the shell like a normal turtle. Instead, it folds its neck back sideways. (It also emits a foul-smelling chemical when agitated, earning this species the nickname "stinker.")

Living in freshwater habitats like marshes, snake-necked turtles eat small fish, aquatic invertebrates, and tadpoles. **See them up close in the Reptile Discovery Center.**

PHOTO BY:
VICTORIA PICKERING

SATURDAY

FRIDAY

THURSDAY

WEDNESDAY

TUESDAY

MONDAY

SUNDAY

LIGHT UP THE SEASON:
zoolights runs from Thanksgiving weekend to New Year's each year, with spectacular displays thanks to half a million LED lights, live music, food, a tube slide (no snow needed), and other festivities. fonz.org/zoolights

The calendar for members of
FONZ
FRIENDS OF THE
NATIONAL ZOO

3

2

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2019 Birthday Parties
and Winter Camp
registration opens for all
FONZ members.
fonz.org/birthday
fonz.org/camps

DAYLIGHT SAVING
TIME ENDS

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october 2018

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december 2018

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THANKSGIVING



december 2018

Giant Panda

Genus: *Ailuropoda*
Species: *melanoeca*

Giant pandas are strong swimmers. This is surprising, given that they don't spend a lot of time in the water in their native habitat: the bamboo forests in China's mountainous central regions. They don't hunt marine prey (or any prey; most of their diet is bamboo), and they rarely need to cross rivers. Yet they're comfortable in the water. **See the Zoo's giant pandas at the David M. Rubenstein Family Giant Panda Habitat.**

PHOTO BY: LINDA GLISSON

SATURDAY

FRIDAY

THURSDAY

WEDNESDAY

TUESDAY

MONDAY

SUNDAY

The calendar
for members of
FONZ
FRIENDS OF THE
NATIONAL ZOO

CONSERVATION NATION:
If your uncle doesn't need another sweater and your aunt
doesn't need another cookbook, consider making a donation
in their name. The proceeds of Conservation Nation fund some
of the world-renowned research done by the Zoo and SCBI, like
purchasing tracking collars for elephants and giraffes.
fonz.org/give

HANUKKAH BEGINS AT
SUNDOWN.

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november 2018

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WINTER SOLSTICE

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january 2019

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Get the Most

Out of Your FONZ Membership

Make 2018 your wildest year yet! Enjoy FONZ membership benefits such as free parking, invitations to exclusive events, special members-only discounts, and much more.*

Learn more about your benefits: fonz.org/benefits

Upgrade your membership and enjoy even more benefits: fonz.org/join

CAMPS

Students are invited to sign up for adventure during spring, summer, and winter school breaks.

fonz.org/camps

CLASSES

Leap into learning with FONZ's award-winning education programs, featuring hands-on classes for children and adults of all ages.

fonz.org/classes

OVERNIGHTS

Pack your sleeping bag and pitch a tent at the Zoo for a night of camping unlike any other.

fonz.org/overnights

VOLUNTEER

From caring for the animals to working alongside scientists, the Zoo and Smithsonian Conservation Biology Institute offer a wealth of opportunities for FONZ volunteers. Learn more and sign up today.

fonz.org/volunteer

**Benefits vary with membership level and/or specific program.*

fonz.org/benefits

Together, We Save Species.

Thank You.

Your 2018 FONZ calendar

is a benefit of your Friends of the National Zoo membership.

Together, we help the Zoo and SCBI save species. Thank you for your support.

A FONZ MEMBER EXCLUSIVE!

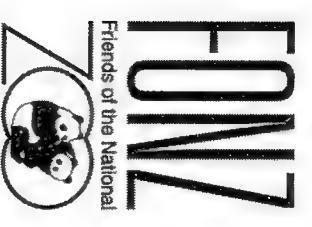
Birthday Parties at the Zoo Give your child a birthday party worth roaring about with a safari-themed celebration at the Zoo. fonz.org/birthday



Give the Gift of Animals

Treat the animal lovers in your life to a year of fun, exclusive benefits, and wildlife conservation with a gift membership to Friends of the National Zoo. Your recipients will love knowing that their membership helps fund animal care and conservation at the Zoo and around the world.

Order your gift membership at fonz.org/gift



Friends of the National Zoo
PO Box 37012, MRC 5516, NW, Washington, DC 20013-7012
www.fonz.org

EDITOR: Peter Winkler
WRITER: Jeff Garigliano
COVER PHOTO: Barbara Statas
DESIGN: 2farthings:design

DREAM HOME

Coming soon: The Smithsonian's National Zoo's naked mole-rats are getting a total home makeover! It'll be a dream for the mole-rats—and an improved viewing experience for Zoo guests—plus the return of webcams for 24/7 at-home viewing! But we can't do it without you. With your generous support, we can reach our goal of **\$100,000** and build a dream home fit for a queen!

DONATE TODAY! fonz.org/molerat2017



Fast and fury friends: The two male tiger cubs will grow up together at the San Diego Zoo and Safari Park.

a

ny animal birth at the Zoo is exciting, but a newborn Sumatran tiger cub is something special. There are only 400 such tigers in the wild, and breeding them at zoos worldwide is a crucial step in trying to save the species. So when a male Sumatran tiger cub was born at the Zoo in July, the staff was elated. Over the next two months, however, when the cub wasn't growing on schedule, the staff had to come up with a new plan. They benefited from some critical partners and a bit of luck.

Planning for Success

Most zoo births are preceded by thorough planning that delves into the specifics of the parents' genetics, behavior, and health. It may take months—or years—to

match a mating pair whose offspring will further the genetic health of the species' population. Once matched on paper, the two potential mates then need to be introduced to one another—a prospect that may require interstate travel for one or both of the animals. Even then, there's no guarantee of success. One animal may not accept the other. Ignoring each other is bad, but aggression is worse. In some cases, the animals may get along, and even mate, without generating offspring.

Until recently, that was the story for Sparky. The 13-year-old male Sumatran tiger had desirable genetics, and nearly a decade ago, the Association of Zoos and Aquariums' (AZA) Sumatran Tiger Species Survival Plan (SSP) recommended

When the Zoo's newborn tiger cub needed help this summer, staffers partnered with their colleagues at the San Diego Zoo and Safari Park to give him a playmate—and save his life.

cub buds

BY CRISTINA SANTIESTEVAN

breeding him with Leela at the Louisville Zoo. Although the two cats occasionally showed signs of breeding, no cubs resulted from the match.

With the hope that a different partner might make a difference, the AZA's Sumatran Tiger SSP recommended sending Sparky to the Smithsonian's National Zoo to be paired with the Zoo's eight-year-old female, Damai. The plan worked. Damai gave birth to their cub—her second litter and Sparky's first—at 4:17 p.m. on July 11, 2017, almost exactly a year after Sparky first arrived at the Zoo.

By all appearances, the cub was healthy and robust. Damai behaved with maternal confidence and comfort. After allowing the two several days to bond, keepers were able to quickly examine

and weigh the cub. At that first exam, he weighed about three-and-a-half pounds. By July 26—approximately two weeks later—he had nearly doubled his weight. So far, so good.

Preparing for the Worst

Damai had raised cubs in the past. She'd given birth to a female (named Sukacita) and a male (Bandar) four years ago, with no apparent trouble. Both cubs thrived and are now healthy adults. Following Damai's success with her first litter, there was no special reason to worry about her second. But, as is Zoo policy, the staff—led by Craig Saffoe, curator of Great Cats (along with Andean bears and the Kids' Farm)—prepared for a worst-case scenario.

cub buds





Keepers only resort to hand-feeding cubs in situations where the mother stops nursing.

ROSHAN PATEL/NZP

"We anticipate needs and develop a plan as soon as we know a birth date or approximate timeframe," explains Erin Kendrick, a clinical nutritionist with the Zoo's Department of Nutrition Sciences. "These protocols allow us to be prepared before babies are born, just in case we need to step in. We hope not to have to intervene, but we always keep a close eye on any animal from birth."

On July 30, a routine check revealed a worrisome result. The cub was losing weight. He was just 19 days old, and if he was to survive, he would need to begin gaining weight again, and soon.

The husbandry team immediately called on the Zoo's animal health department for a medical evaluation. That evaluation found no signs of illness or injury, and no reason for the cub's sudden weight loss. "So they looked at mom," Saffoe explains. "Is mom tender? Does she seem like she's

"...hand-feeding from a bottle...probably sounds cute, but we don't want to hand-raise animals if we can avoid it," says Saffoe.

in pain when she's nursing him?"

And indeed, Damai's behavior did suggest something might be wrong. After several weeks of normal maternal behavior, she had begun to push her cub away when he tried to nurse. Suspecting mastitis—a painful and relatively common infection of the breast tissue in lactating mammals—the Zoo's veterinarians began treating her with antibiotics and anti-inflammatories.

Meanwhile, Saffoe and his team called on the help of the Zoo's Department of Nutrition Sciences. "Past the first couple of days, we know we shouldn't see weight loss," says Kendrick. "So our first priority became helping him gain again."

The husbandry team and the nutrition team settled on a solution that would ensure the cub's survival: hand-feeding from

a bottle. "It probably sounds cute, but we don't want to hand-raise animals if we can avoid it," says Saffoe, explaining that a tiger cub raised exclusively by humans might grow up to be a tiger adult that identifies more as human than tiger. So Saffoe and his team settled on a plan to assist-rear the cub. They would feed the cub via bottle, but would rely on Damai for the rest. "We literally just put a bottle into his mouth and then would reintroduce him to mom," says Saffoe. "Damai was doing all the socialization. She was doing everything that a mother tiger should do, except giving him all the milk he needs."

"Hormones Drive Us All Crazy"

At first, it seemed that the assist-rearing plan would work. That entailed five feedings a day, starting at 6 a.m. and finishing after midnight. Damai showed no stress about the arrangement, and appeared to be responding to her antibiotics. She played with her cub normally, and even began to let him suckle again (although Saffoe suspects she was no longer actually producing milk). The cub began to put weight on again.

But then, something else went wrong. Because she was no longer nursing her cub and producing milk, Damai's hormones shifted and she cycled into estrus. Put simply, her body was ready to breed again. Saffoe and his team knew this was a possibility. What they didn't know was how Damai would respond.

"Her reaction to cycling again was to push him away completely," says Saffoe, who explains that Damai became increasingly agitated and aggressive toward her cub. "I think some people want to vilify her, but it doesn't have anything to do with a lack of desire to take care of her kid—she was taking care of him. It has to do with hormones. Hormones drive us all crazy."

The process of reintroducing the cub to his mother after each bottle feeding became increasingly stressful. Saffoe and his team spent more and more time observing the pair, assuring themselves that Damai's warnings would not turn into outright violence. Finally, after days of increasingly tense reintroductions, Saffoe decided it was safer to keep the cub and mother separate. By late August, the

team of keepers was still trying to reintroduce the mother and cub, but they would no longer leave them unobserved together. And after another 10 days, they stopped even that. The risk was simply too great.

Opportunity Calls

About this time, Saffoe sent an email to Autumn Nelson, the animal care supervisor for mammals at the San Diego Zoo and Safari Park, about breeding pairs in human care. In that email, Saffoe also shared a quick update on the situation with Damai and her youngest cub.

Saffoe wasn't looking for a solution or even for advice. He was simply updating a colleague on a challenging situation that had his attention. But there was something that he did not know. A couple weeks before Saffoe sent his email, U.S. Customs and Border Protection officers found and confiscated a 5- to 6-week-old male Bengal tiger cub while inspecting a vehicle that was entering the United States from Mexico. That cub was being hand-reared by Nelson

We had the Sumatran tiger cub in his crate and the Bengal tiger cub went up to the mesh immediately to say “hello.” Upon opening the door, they immediately greeted each other and started playing shortly after.

and her team at the San Diego Zoo.

When Nelson replied to Saffoe's email, she had a proposition for him. Why not raise the two cubs together, so that the two effectively motherless cubs could grow up as surrogate brothers? There was only one catch: The cubs would need to be raised in San Diego, because their Bengal cub could

not legally leave the state of California. “It was immediately obvious to both of us that we had to try to get these cubs together,” says Saffoe. “They had a cub who clearly was motherless and was being hand-reared. We also had a cub who had a very real chance of needing to be completely hand-reared. Both cubs were about the same age. And both were just sitting there, alone. Of course, I would have loved to have brought their cub out here, instead. But theirs couldn't leave, so ours would need to go out there.”

The next set of events happened quickly. There was no argument at either zoo about the wisdom of the plan—it was clear to all that this was the best thing for the two tiger cubs. No special preparations were necessary for the cub, because he was already comfortable sleeping in his travel crate, which was small enough to be carried onto a commercial airplane. Even finding plane tickets for the tiger proved easier than anticipated. “We were very lucky,” says Saffoe. “Our senior leadership used their network to get hold of contacts they had at South-



KEN BOHN, PHOTOGRAPHER SAN DIEGO ZOO SAFARI PARK

west Airlines. Without batting an eyelash, Southwest said, 'No problem—we'll get you out there. How many tickets do you need?' Southwest really came through for us."

And so, on September 11, Saffoe and two colleagues—along with the cub, who was allocated two seats for his travel crate—found themselves on a Southwest plane bound for San Diego. Both the cub and the other passengers on the flight seemed to enjoy the experience, says Saffoe. "People were jazzed about it. They were coming by and wanting to take pictures with him. And he loved it. He just sat comfortably and watched people."

Once at the San Diego Zoo, the cubs were introduced almost immediately. "They took to each other right away," says Nelson, who explains that the initial introduction went about as smoothly as anyone could have hoped. "We had the Sumatran tiger cub in his crate and the Bengal tiger cub went up to the mesh immediately to say 'hello.' Upon opening the door, they immediately greeted each other and started playing shortly after. We realized very quickly that they were going to be a great fit together."

Saffoe and his team flew home the next day. Less than a week had passed since his first email to Nelson.

Working Together and Saving Species

The Zoo's eager plans for the cub won't happen. But one very important thing will. Damai's cub will grow up as a tiger should, playing and tumbling and biting and learning with a tiger companion. Damai's cub will survive and thrive—just in a different facility on a different coast.

A widely accepted truism of parenting is that it takes a "village" to raise a child. Parents and grandparents, aunts, uncles, friends, doctors, teachers, community members—the list often grows longer and more complex than any new parent would

FACING PAGE: San Diego keeper Lissa McCafree and National Zoo curator Craig Saffoe feed the two tiger cubs.

ABOVE: Sparky, the cub's father, on exhibit at the Zoo

RIGHT: Damai, the cub's mother, has given birth to several cubs so far.

ever suspect. And it was this *village*—this network of peers and professionals, first at the Smithsonian's National Zoo and then clear across the country with San Diego Zoo and Southwest Airlines—that was able to join together for the sake of the Zoo's littlest tiger cub. "It's not just the animal keepers who saved this tiger," says Saffoe. "It's not just the vets who saved this tiger. It's not just the nutritionists who saved this tiger. It was a huge team effort of three major components of the Zoo—husbandry, nutrition, and the vets—who worked together to save this guy. Then, when it started to look bleak, it was our collaborations with our partner institutions within the AZA—in this case, San Diego—and our connections with Southwest that really paid off. I am really grateful that we are in a position here with zoos in North America that we have these great partners to work with."

Even though the cub will now grow up far from his earliest caregivers, Saffoe and his team know they did the right thing. "We did what's best for the cub. And knowing that we did that is one of the most gratifying feelings. In my mind, that's how we save species." **SZ**

—*Freelance writer and editor CRISTINA SANTIESTEVEN is a longtime contributor to the magazine.*



BARBARA STATAS/FONZ PHOTO CLUB



BARBARA STATAS/FONZ PHOTO CLUB



Good day.

Great day.

BEAST BITS

zoogoer kids CORNER

Slip and Slide

The Zoo's giant pandas are more active in the wintertime than when it's warm out. They're native to the western mountains of China, at high elevations where it's nice and cold. They (probably like you) love snow days. When there's a coating on the ground, they sometimes like to take a slide—no sled required! Drop by the Zoo this winter and check them out in person. Look out below!



MEHGAN MURPHY/NZP



ISTOCK

U-Haul

Harbor seals are flexible—they can live in warm water or in the icy-cold Arctic. When they want to take a break from swimming, they'll sometimes haul themselves out onto a patch of floating ice, to hang out, rest, or even have pups! Some types of harbor seals have more than one-fourth of their weight in blubber, which keeps them nice and warm in chilly water. See the Zoo's harbor seal, Luke, at American Trail.

Fun Fact!

Harbor seals can stay underwater for up to 30 minutes!



CREATURE FEATURE

Red pandas
have some
cool features
designed to
help them
thrive in the
winter.

Black and White and Red All Over

BY SARAH BELLINGER

When is a panda not a panda? When it's a red panda! Despite their name, red pandas are more like weasels and raccoons than giant pandas. However, they don't really have any close relatives in the animal world. That's what makes them special.

BAMBOO for Breakfast, Lunch, and Dinner Red pandas do share a few traits with giant pandas. Both live in the same part of the world—the mountain forests of Asia—and both have special wrist bones on their front paws that act like thumbs to help them grip stuff. Also, both species have the same favorite food: bamboo! It makes up about 90 percent of a red panda's diet.

Nice MITTS Red pandas love winter! They live in the Himalayan mountains in Asia, high up in the snow. They have fur on the bottom of their paws—just like polar-bear paws—that insulates them from the freezing conditions. Also, red panda ankles are really flexible. They can turn all the way around to help the animals climb down trees.

HIDE AND SEEK, Red Panda-Style
It may seem hard to believe, but their reddish fur helps them blend in. They spend a lot of time in trees, which have red moss and white plants called lichens. And their thick, bushy tails—which have alternating stripes—help them hide from predators. Also, their tails give them balance. They need this especially in the winter, when they climb slippery trees to soak in the warm sun!

Who's Ready for a NAP? When it's super cold out, red pandas can slow their metabolism down and go dormant for a few hours, then wake up to look for food. This strategy helps them save energy—which is important because the bamboo they eat doesn't provide a lot of nutrition.

HELPING Red Panda Populations

Red pandas are endangered in the wild. Their biggest threat isn't predators—it's people. They need the right conditions (water, trees, bamboo), and as the number of people in the world increases, we're taking over their territory. Luckily, the Zoo and the Smithsonian Conservation Biology Institute in Front Royal, Virginia, are helping save the species. Since 1962, the two facilities have bred more than 100 red panda cubs!

At the ZOO The Zoo has two red pandas—Tusa (a male) and Asa (a female)—on exhibit at Asia Trail. They're most active around sunset. If you visit their exhibit and don't see them, they're probably inside. They can go in and out whenever they want.

YOUR TURN

**Red Panda + Green Bamboo
+ Your Creativity = Cool Wrapping Paper**

1. Draw the head, shaped almost like an upside down heart.
2. Add pointy ears and facial features.
3. Draw the body, like a bowl with a top.
4. Give the animal four legs.
5. Add a curved tail.
6. Draw six or so rings on the tail.
7. Add bamboo for your red panda to enjoy.

>>> Learn more at WeDrawAnimals.com.



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or go to
fonz.org/join

PHOTOS BY FONZ EDUCATION DEPARTMENT



**Send your child on safari with
FRIENDS OF THE NATIONAL ZOO
this spring or summer!**

Safari Day Camp invites kids in or entering grades K-7 to explore the lives and conservation of animals around the world with daily excursions and activities at the Smithsonian's National Zoo. Each week-long session includes hands-on activities, craft projects, science experiments, and guided walks through the Zoo. (Campers do not have direct contact with animals or assist with animal care.)

All camp sessions are grouped by grade level. Spring campers should register for their current grade level, while summer campers should register for the grade level they will be entering in fall 2018.

REGISTER EARLY TO CLAIM YOUR CHILD'S TOP CHOICE!

Popular camp sessions fill up quickly—take advantage of priority registration to claim your child's top choice! Learn more and register online: fonz.org/safari2018

>> Priority registration begins January 30 at 10 a.m. >> Registration for all FONZ members begins February 6 at 10 a.m.

Available to all current FONZ members at or above the Premier+ membership level. Upgrade your membership today to qualify for priority registration: fonz.org/join

Available to all current FONZ members. Renew your membership today to ensure you will qualify: fonz.org/join

>> Registration for non-members begins February 14 at 10 a.m.

NEED AN EARLY DROP-OFF OR LATE PICK-UP? Regular drop-off for all Safari Day Camps is at 8:45-9 a.m. and pick-up is at 3 p.m. Limited space is available for Before-Camp Care (8-8:45 a.m.) and After-Camp Care (3-6 p.m.) for an additional fee. If you need an early drop-off or a later pick-up, we encourage you to register early at fonz.org/safari2018.

Exclusive Discounts for FONZ Members!

FONZ members save 20% on Spring and Summer Safari Day Camps. That's a total savings of \$100 for each week-long session!*

FONZ MEMBER PRICE:
\$400 for each week-long camp session.*

NON-MEMBER PRICE:
\$500 for each week-long camp session.*

* Safari Day Camp is offered in a four-day session the week of Independence Day (July 2-6). A reduced fee applies for this session.

New for 2018! Bye-bye promo codes, hello new registration system! To receive your member discount, simply login using your member account information.



2018 SAFARI DAY CAMP SCHEDULES Safari Day Camp is offered during the spring, summer, and winter school breaks. Each week-long session runs from 9 a.m. to 3 p.m., Monday through Friday, excluding holidays. Before- and After-Camp Care is offered on a limited basis.

Spring Safari Day Camps

Put a spring in your child's step with FONZ's Spring Safari Day Camp at the National Zoo. Camp is offered in a week-long session from March 26-30.

Learn more, explore the camp listings, and register online: fonz.org/springsafari2018

Summer Safari Day Camp is accredited by the American Camp Association.



Summer Safari Day Camps

Make it a summer worth roaring about with FONZ's Summer Safari Day Camp at the National Zoo. Camps are offered in week-long sessions from June 25 through August 17. Accredited by the American Camp Association.

Learn more, explore the camp listings, and register online: fonz.org/summersafari2018

Eight separate week-long sessions—register for one, two, several, or all eight!

>> June 25-29

>> July 2-6
(No camp on
Independence Day)

>> July 9-13

>> July 16-20

>> July 23-27

>> July 30-Aug. 3

>> August 6-10

>> August 13-17

School's Out Camp— Single Day Sessions (Grades K-6)

Jan. 19 | Feb. 16 | April 16

Make the most of your child's day off from school by exploring the "living classroom" at the National Zoo! School's Out Camp sessions will take place from 9 a.m. to 4 p.m. Before-Camp and After-Camp Care are not available for this program.

Learn more, explore the camp listings, and register at fonz.org/single2018

It's the
most exciting
conservation
camp on the East
Coast, **and your
child is invited.**

FONZ

CHILDREN'S
CLASSES

Learning is WILD at the National Zoo!

PHOTOS BY FONZ EDUCATION DEPARTMENT

FONZ classes use hands-on activities, nature-based play, and the Zoo's animal collection to help your child learn about science and environmental conservation. Whether you prefer a regular, weekly experience with your child or a one-time program about her favorite Zoo animal, you're sure to find a class to suit the needs of your young animal lover. Classes for ages 2-14 are now available.

Classes do not include behind-the-scenes visits or direct contact with the animals, but do use pelts, bones, feathers, and other touchable artifacts. For everyone's safety, unregistered children may not attend.

See detailed descriptions and register at fonz.org/classes.

Five-class series
\$150 (FONZ members)
\$188 (non-members)

Six-class series
\$180 (FONZ members)
\$225 (non-members)

Weekend Classes
\$28 (FONZ members)
\$35 (non-members)

NATURE CUBS SERIES

Nature Cubs preschool classes meet once a week for five weeks and help children build their knowledge of animals and the natural world while strengthening important academic, developmental, and social skills. Saturday morning session now available for both age groups.

AGES 2-3 (with adult)

Sing Along Zoo

Learn all about the real animals behind your favorite songs! From the animals on Old McDonald's farm to itsy-bitsy spiders, we're singing and dancing our way through the Zoo!
Jan. 8 – Feb. 10
Sessions available Monday through Saturday, 10-11:30 a.m.

Colorful Creatures

From golden lion tamarins to color-changing chameleons, the Zoo is home to some colorful characters! A different animal each week will help us explore all of the colors of the rainbow and understand how animals use these colors to survive.
Feb. 19 – Mar. 24
Sessions available Monday through Saturday, 10-11:30 a.m.

AGES 3-5 (with adult)

Coats of All Kinds

We wear coats in the winter, but our animal friends wear them all year long! Fur, feathers, scales and more are right at your fingertips in this hands-on adventure.
Jan. 8 – Feb. 10
Sessions available Monday, Tuesday, or Saturday, 10-11:30 a.m.

Monkey Business

A little bird told me that we'll have the lion's share of fun in this class! Learn about animals that play a part in some popular English expressions.
Feb. 19 – Mar. 24
Sessions available Monday, Tuesday, or Saturday, 10-11:30 a.m.



WEEKEND CHILDREN'S CLASSES

Single-session classes for children and adults to enjoy together! Interactive stations and a hands-on discussion get you ready to visit the animal of the day! Classes meet from 10-11:30 a.m.

See fonz.org/classes for specific information about ages and dates.

Meerkat Mania

Dig into learning with the Zoo's friskiest family: our mob of meerkats! Ages 2-3; Dec. 10

Monkey See, Monkey Do

Jump, swing, groom, and climb: learn what it's like to be a curious monkey! Ages 2-3; Dec. 17

New (Year) at the Zoo

Get to know the newest Zoo arrivals! Ages 2-3 and 3-5 Jan. 6 or 7

Just Like Me: Super Senses

Look, listen, smell, and touch as we learn about some super-sensory species! Ages 2-3; Jan. 14

Just Like Me: Animals Love to Play

Peek a Zoo! Animals use play to learn about the world. Discover how and why animals play. Ages 3-5; Jan. 21

Good Night Gorilla

Get to know the gentle giants behind your favorite good night book! Ages 2-3; Jan. 28

Lion Lessons

Do you have what it takes to be part of the pride? Ages 2-3 and 3-5; Feb. 4

Ele-Fun

The Zoo's gentle giants want you to join the herd! Try out your own trunk as we learn about elephants! Ages 2-3 and 3-5 Feb. 11, 17, or 18

Panda Party

Explore the hidden world of these beautiful bears then visit the Zoo's most famous family! Ages 2-3 and 3-5 Feb. 24 or 25

HOMESCHOOL CLASS SERIES AGES 5-12

Homeschool classes at the National Zoo investigate a new theme each academic year. Each 2017-2018 class series will be a detailed exploration of a major global biome and the animals that make it their home. Hands-on science experiments, inquiry-based learning, and Zoo Walks led by our expert teachers bring these concepts to life and address Next Generation Science Standards.

Wondering About Rainforests

Uncover the secrets of one of the world's most fascinating biomes and the animals that call it home. Join us as we explore these perfect centers for biodiversity layer by layer. Jan. 8 – Feb. 8 Ages 5-8, Mondays, 10:30-12:30 Ages 7-12, Thursdays, 10 a.m.-12 noon

Aquatic Investigators

The world's aquatic habitats are home to an extremely diverse group of animals. We'll explore the amazing adaptations that these species have evolved to survive and discover how our local watersheds feed the world's oceans. Feb. 19 – Mar. 22 Ages 5-8, Mondays, 10:30-12:30 Ages 7-12, Thursdays, 10 a.m.-12 noon

NEW!

Zoo 101: Homeschool Class Series for kids ages 11-14

Zoo 101 is a project-based class that explores major topics in the inner workings of a zoo. Zoo 101 will explore a different core topic in zoo management each session and is appropriate for students ages 11 to 14, or those students who have completed three full years of FONZ homeschool programs.

For topics, dates, and pricing, visit fonz.org/classes

FONZ

got stories?

FONZ'S 60th Anniversary | 1958-2018

On an autumn evening in 1957, members of the Connecticut Avenue Citizens Association sat shocked as National Zoo director Theodore Reed sketched a bleak picture of conditions in the park. The Zoo needed help—and fast.

Help came. Friends of the National Zoo, formed to support

and advocate for the Zoo, was born on April 10, 1958, and has been a stalwart partner ever since.

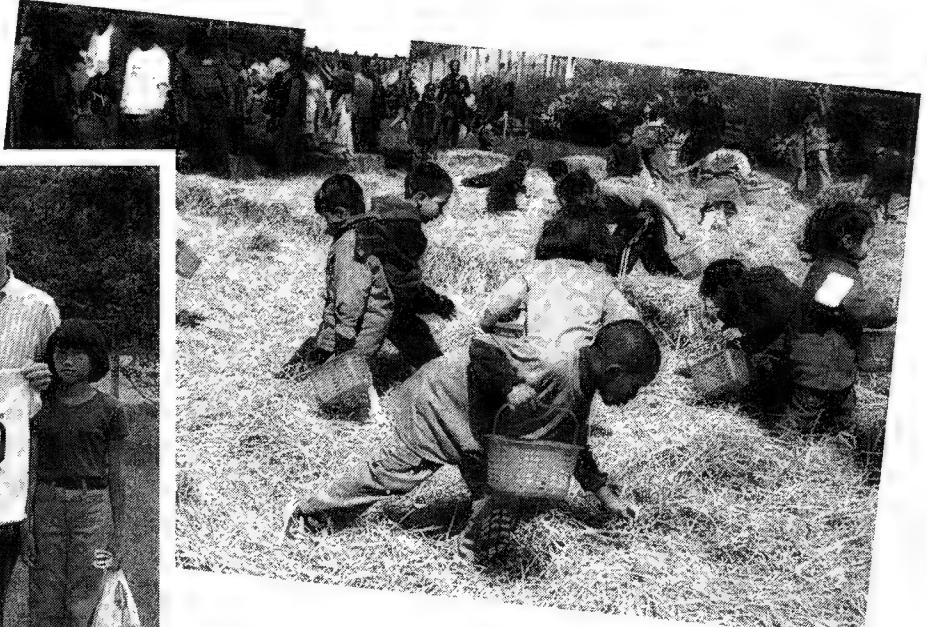
Now, as we celebrate our 60th anniversary, we hope to gather as many stories as we can about FONZ—past and present.



MEGHAN MURPHY/NZP

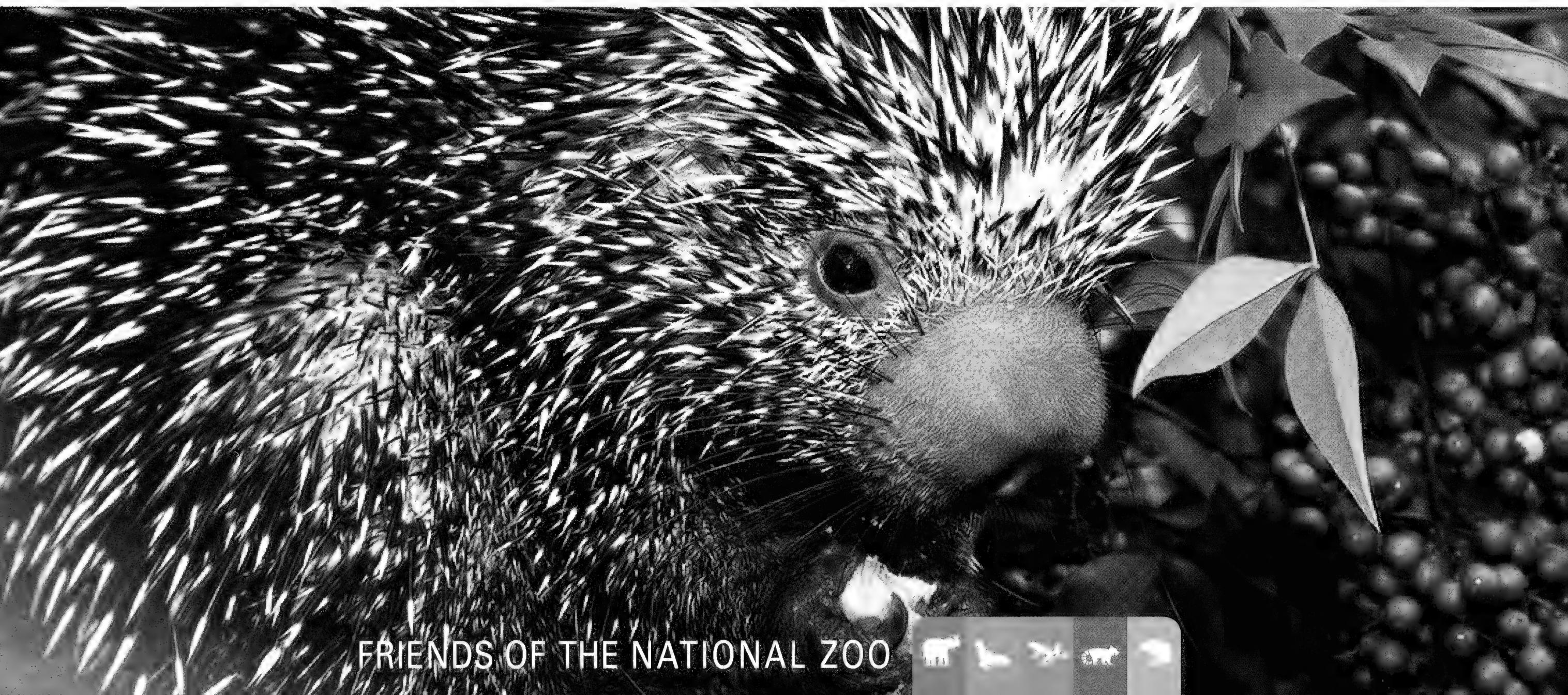
We invite you to share tales of your own experiences, whether visiting the Zoo, enjoying an event, volunteering, attending a camp or class (or sending a child to one), or something else.

FONZstories@si.edu

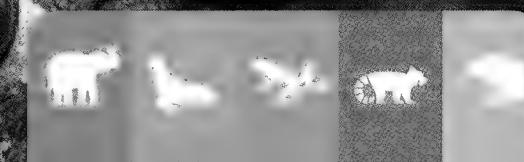


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MEGHAN MURPHY/NZP



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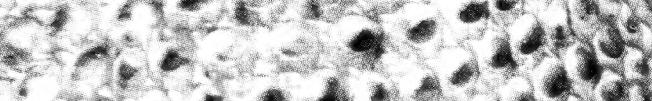
1. Stop worrying. We can help.
2. Make a donation to animals at fonz.org/endofyear.
3. Enjoy your deduction!



FOR ANIMAL LOVERS

DONATE ONLINE BEFORE DECEMBER 31, 2017, TO RECEIVE YOUR TAX DEDUCTION THIS YEAR.

Friends of the National Zoo (FONZ) is a 501(c)3 nonprofit organization, and your donation is tax deductible to the fullest extent of the law.



BARBARA STATAS/FONZ PHOTO CLUB

Slurp!

Photographing the Zoo's Komodo dragon isn't easy—

the (necessary but pesky) glass walls around the exhibit create reflections. For **Barbara Statas**, a member of the FONZ Photo Club for about 10 years and current co-leader of the club, timing is everything. "It works best when the pane of glass is in the shade and the dragon is in the sun," she says. When that's not possible, she puts the lens directly against the glass to photograph straight in. She also carries around a piece of black craft foam that she can wrap around the lens as a flexible hood to block out the reflections. That approach lets her shoot at an angle to get a better composition.

For this image, the Komodo dragon happened to be active from soaking up the sun. She had the frame composed and waited patiently until he stuck his tongue out—then fired the shutter.

Technical Notes

CAMERA: NIKON D750; **FOCAL LENGTH:** 270.0

LENS: 200-400 MM; **ISO:** 2500; **EXPOSURE:** 1/800 SEC AT F/7.1

Share Your Photos!

Smithsonian Zoogoer welcomes FONZ members' submissions of photos taken at the Zoo. Please send photos to Zoogoer@si.edu or post to [@FONZNationalZoo](https://twitter.com/FONZNationalZoo) on Twitter, Instagram, or Facebook. Use the hashtag [#WeAreFONZ](#). Your photo may be featured on the Zoo View page.

Join the Club! Membership in the FONZ Photo Club is open to photographers of all skill levels. The group meets monthly to hear guest speakers and to share and discuss members' work. Learn more at fonz.org/photoclub.

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S'MORES

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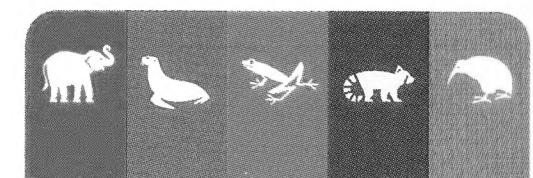
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